Education at a Glance 2009

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Foreword

Governments are paying increasing attention to international comparisons as they search for effective policies that enhance individuals' social and economic prospects, provide incentives for greater efficiency in schooling, and help to mobilise resources to meet rising demands. As part of its response, the OECD Directorate for Education devotes a major effort to the development and analysis of the quantitative, internationally comparable indicators that it publishes annually in *Education at a Glance*. These indicators enable educational policy makers and practitioners alike to see their education systems in the light of other countries' performances and, together with OECD's country policy reviews, are designed to support and review the efforts that governments are making towards policy reform.

Education at a Glance addresses the needs of a range of users, from governments seeking to learn policy lessons to academics requiring data for further analysis to the general public wanting to monitor how its nation's schools are progressing in producing world-class students. The publication examines the quality of learning outcomes, the policy levers and contextual factors that shape these outcomes, and the broader private and social returns that accrue to investments in education.

Education at a Glance is the product of a long-standing, collaborative effort between OECD governments, the experts and institutions working within the framework of the OECD's indicators of education systems (INES) programme and the OECD Secretariat. The preparation of the publication was co-ordinated by the Indicators and Analysis Division of the OECD Directorate for Education with input from the Centre for Educational Research and Innovation, under the responsibility of Andreas Schleicher, in co-operation with Etienne Albiser, Tracey Burns, Eric Charbonnier, Michael Davidson, Bo Hansson, Corinne Heckmann, David Istance, Karinne Logez, Koji Miyamoto, Sophie Vayssettes, Patrick Werquin, and Jean Yip. Administrative support was provided by Sandrine Meireles, and additional advice as well as analytical and editorial support were provided by Pedro Lenin García de León, Niccolina Clements, Diana Toledo Figueroa, Elisabeth Villoutreix and Alexandra Wise. The development of the publication was steered by member countries through the INES Working Party and facilitated by the INES Networks. The members of the various bodies as well as the individual experts who have contributed to this publication and to OECD INES more generally are listed at the end of the book.

While much progress has been accomplished in recent years, member countries and the OECD continue to strive to strengthen the link between policy needs and the best available internationally comparable data. In doing so, various challenges and trade-offs are faced. First, the indicators need to respond to educational issues that are high on national policy agendas, and where the international comparative perspective can offer important added value to what can be accomplished through national analysis and evaluation. Second, while the indicators need to be as comparable as possible, they also need to be as country-specific as is necessary to allow for historical, systemic and cultural differences between countries. Third, the indicators need to be

presented in as straightforward a manner as possible, while remaining sufficiently complex to reflect multi-faceted educational realities. Fourth, there is a general desire to keep the indicator set as small as possible, but it needs to be large enough to be useful to policy makers across countries that face different educational challenges.

The OECD will continue to address these challenges vigorously and to pursue not just the development of indicators in areas where it is feasible and promising to develop data, but also to advance in areas where a considerable investment still needs to be made in conceptual work. The further development of the OECD Programme for International Student Assessment (PISA) and its extension through the OECD Programme for the International Assessment of Adult Competencies (PIAAC), as well as OECD's Teaching and Learning International Survey (TALIS) are major efforts to this end.

The report is published on the responsibility of the Secretary-General of the OECD.

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Editorial

By Barbara Ischinger, Director for Education

Investing and Innovating in Education for Recovery

This year's edition of *Education at a Glance* is published at a time when all eyes are focused on the financial crisis and its economic and social fallout. Presenting data up to 2007, this edition cannot yet assess the impact of the crisis on education systems, but it does provide indicators that inform the debate about how investments in human capital can contribute to economic recovery.

Education has always been a critical investment for the future, for individuals, for economies and for societies at large. Across OECD countries, the net public return from an investment in tertiary education exceeds USD 50 000 on average for a student (Indicator A8). Moreover, the incentives for individuals to stay on in education are likely to rise over the next years: for instance, the opportunity costs for education decline as the difficulties of finding employment increase and opportunity costs or lost earnings while studying tend to be the largest of all cost components for students (except in the United States where tuition fees are high) (Indicator A8). Declining opportunity costs also strengthen the case for more private investments in education and, as the more educated have a stronger attachment to the labour market (Indicator A6), this also increases the benefits of education. Last but not least, graduating and entering the labour market in an economic downturn can be expected to become more difficult, as employers cut jobs and young graduates compete with more experienced workers.

There are also important equity-related considerations which arise from the deteriorating job prospects for the less-well qualified. While enrolments for 15-19 year-olds have been steadily rising in most countries (Indicator C1), this still leaves an important minority who leave education without acquiring a baseline qualification. Across OECD countries, over 40% with less than an upper secondary qualification are not even employed (Indicator A6). Even those with higher levels of education are vulnerable if they become unemployed. Around half of the unemployed young adults aged 25-34 with lower and upper secondary attainments are long-term unemployed (Indicator C3). Opportunities for continuing education and training are often designed to make up for deficiencies in initial education, but the reality is that participation among individuals with strong initial qualifications is significantly higher than among the least qualified, such that these opportunities often do not reach those who need them most.

Moreover, if, as the data in this volume suggest, the demand for education and qualifications continues to rise as labour market prospects weaken, the gaps in educational attainment between the younger and older adult cohorts are likely to widen further. The vulnerability of older, often less qualified, adults to chronic long-term economic inactivity may thus become more acute. In contrast with much higher levels of educational participation among those in their twenties, less than 6% (5.9%) of the 30-39 year-old population across OECD countries are enrolled full- or part-time (Indicator C1). While in some countries it is significantly higher than this, at more than 1 in 10 (Australia, Finland, Iceland, New Zealand and Sweden), in others participation is

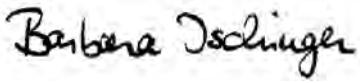
less than 3% of 30-39 year-olds (France, Germany, Korea, Luxembourg, the Netherlands, and Turkey and partner country the Russian Federation), with even lower levels for over 40s in Austria, the Czech Republic, France, Germany, Hungary, Ireland, Italy, Korea, Luxembourg, Mexico, the Netherlands, Portugal, the Slovak Republic, Switzerland and Turkey. With lifelong learning more essential than ever, public policy needs to ask how adequately education and training systems are addressing the learning needs of older adults who are in need of new skills.

As far-reaching as the labour market impacts of the crisis are, the potential social consequences may last even longer. Educational attainment seems to be positively associated with such social outcomes as better health, political interest and interpersonal trust and this is bound to feature in public policy discussions about spending priorities (Indicator A9). Education can therefore be a powerful lever to moderate the social consequences too.

At a time when it is so important to invest in knowledge, skills and capacities that are relevant to economies and societies, particular pressures will be faced in those systems which rely on a major component of work-based training as part of vocational education and training at the secondary or tertiary levels. Companies struggling to cut costs and avoid lay-offs may well find it increasingly hard to place trainees. Systems differ in terms of the scale of combined work/study programmes. In Denmark, Germany, Hungary, Ireland, Switzerland and the partner country Estonia around 75% of upper secondary students in vocational educational programmes are enrolled in programmes which involve school- and work-based elements (Indicator C1). In Australia, Denmark, Iceland, Netherlands and Switzerland, young people are expected to spend more than 3.9 years between the ages of 15 and 29 in programmes combining education and employment (Indicator C3). Hence, sustained policy responses will be needed involving both education and employment authorities to avoid declining opportunities for effective vocational education and training involving a work-based component.

All this being said, it is inevitable that the significant public and private investments in education are being scrutinised. OECD countries as a whole spend 6.1% of their collective GDP on education, all levels combined. In Denmark, Iceland, Korea and the United States, and the partner country Israel, it has reached over 7% (Indicator B2). As a share of total public expenditure, the 2006 OECD average for education stood at 13.3%, ranging from less than 10% in Germany, Italy and Japan to the far higher figure of 22% in Mexico. The case for education's role in the recovery will not simply be based on protecting these spending levels as a privileged *status quo*, but will require a demonstration that education is capable of transforming itself to do a better job and to achieve more with less. Demographic developments may help to alleviate some of the acute budgetary problems such as in those countries where falling rolls of around 20% are expected in schools over the next decade; these countries are concentrated – though not exclusively – in Central and Eastern Europe and Asia (the Czech Republic, Hungary, Korea, Poland, the Slovak Republic, and partner countries Estonia and the Russian Federation). Moreover, not all countries are expecting falling school enrolments – in Ireland, Spain and the partner country Israel, the 5-14 year-old population is set to rise by more than 15% by 2015 (Indicator B2) and in tertiary education it is not clear how demographic trends will interact with rising enrolment.

This editorial identifies some of the immediate challenges likely to be faced by education, recognising that a longer-term future needs to be built. Establishing solutions will require the insights of many and close collaboration among countries. For this purpose, the Education Directorate has established the online collaborative platform "*educationtoday: OECD's education lighthouse for the way out of the crisis*" where countries can share their experience and jointly work on solutions over the years to come.



Introduction: the Indicators and their Framework

The organising framework

Education at a Glance – OECD Indicators 2009 provides a rich, comparable and up-to-date array of indicators that reflect a consensus among professionals on how to measure the current state of education internationally. The indicators provide information on the human and financial resources invested in education, on how education and learning systems operate and evolve, and on the returns to educational investments. The indicators are organised thematically, and each is accompanied by information on the policy context and the interpretation of the data. The education indicators are presented within an organising framework that:

- distinguishes between the actors in education systems: individual learners and teachers, instructional settings and learning environments, educational service providers, and the education system as a whole;
- groups the indicators according to whether they speak to learning outcomes for individuals or countries, policy levers or circumstances that shape these outcomes, or to antecedents or constraints that set policy choices into context; and
- identifies the policy issues to which the indicators relate, with three major categories distinguishing between the quality of educational outcomes and educational provision, issues of equity in educational outcomes and educational opportunities, and the adequacy and effectiveness of resource management.

The following matrix describes the first two dimensions:

	1. Education and learning outputs and outcomes	**2. Policy levers and contexts shaping educational outcomes**	**3. Antecedents or constraints that contextualise policy**
I. Individual participants in education and learning	**1.I** The quality and distribution of individual educational outcomes	**2.I** Individual attitudes, engagement, and behaviour to teaching and learning	**3.I** Background characteristics of the individual learners and teachers
II. Instructional settings	**1.II** The quality of instructional delivery	**2.II** Pedagogy, learning practices and classroom climate	**3.II** Student learning conditions and teacher working conditions
III. Providers of educational services	**1.III** The output of educational institutions and institutional performance	**2.III** School environment and organisation	**3.III** Characteristics of the service providers and their communities
IV. The education system as a whole	**1.IV** The overall performance of the education system	**2.IV** System-wide institutional settings, resource allocations, and policies	**3.IV** The national educational, social, economic, and demographic contexts

The following sections discuss the matrix dimensions in more detail:

Actors in education systems

The OECD indicators of education systems (INES) programme seeks to gauge the performance of national education systems as a whole, rather than to compare individual institutional or other sub-national entities. However, there is increasing recognition that many important features of the development, functioning and impact of education systems can only be assessed through an understanding of learning outcomes and their relationships to inputs and processes at the level of individuals and institutions. To account for this, the indicator framework distinguishes between a macro level, two meso-levels and a micro-level of education systems. These relate to:

- the education system as a whole;
- the educational institutions and providers of educational services;
- the instructional setting and the learning environment within the institutions; and
- the individual participants in education and learning.

To some extent, these levels correspond to the entities from which data are being collected but their importance mainly centres on the fact that many features of the education system play out quite differently at different levels of the system, which needs to be taken into account when interpreting the indicators. For example, at the level of students within a classroom, the relationship between student achievement and class size may be negative, if students in small classes benefit from improved contact with teachers. At the class or school level, however, students are often intentionally grouped such that weaker or disadvantaged students are placed in smaller classes so that they receive more individual attention. At the school level, therefore, the observed relationship between class size and student achievement is often positive (suggesting that students in larger classes perform better than students in smaller classes). At higher aggregated levels of education systems, the relationship between student achievement and class size is further confounded, *e.g.* by the socio-economic intake of schools or by factors relating to the learning culture in different countries. Past analyses which have relied on macro-level data alone have therefore sometimes led to misleading conclusions.

Outcomes, policy levers and antecedents

The second dimension in the organising framework further groups the indicators at each of the above levels:

- indicators on observed outputs of education systems, as well as indicators related to the impact of knowledge and skills for individuals, societies and economies, are grouped under the sub-heading *output and outcomes of education and learning;*
- the sub-heading *policy levers and contexts* groups activities seeking information on the policy levers or circumstances which shape the outputs and outcomes at each level; and
- these policy levers and contexts typically have *antecedents* – factors that define or constrain policy. These are represented by the sub-heading antecedents and constraints. It should be noted that the antecedents or constraints are usually specific for a given level of the education system and that antecedents at a lower level of the system may well be policy levers at a higher level. For teachers and students in a school, for example, teacher qualifications are a given constraint while, at the level of the education system, professional development of teachers is a key policy lever.

Policy issues

Each of the resulting cells in the framework can then be used to address a variety of issues from different policy perspectives. For the purpose of this framework, policy perspectives are grouped into three classes that constitute the third dimension in the organising framework for INES:

- quality of educational outcomes and educational provision;
- equality of educational outcomes and equity in educational opportunities; and
- adequacy, effectiveness and efficiency of resource management.

In addition to the dimensions mentioned above, the time perspective as an additional dimension in the framework, allows dynamic aspects in the development of education systems to be modelled also.

The indicators that are published in *Education at a Glance 2009* fit within this framework, though often they speak to more than one cell.

Most of the indicators in **Chapter A** *The output of educational institutions and the impact of learning* relate to the first column of the matrix describing outputs and outcomes of education. Even so, indicators in **Chapter A** measuring educational attainment for different generations, for instance, not only provide a measure of the output of the educational system, but also provide context for current educational policies, helping to shape polices on, for example, lifelong learning.

Chapter B *Financial and human resources invested in education* provides indicators that are either policy levers or antecedents to policy, or sometimes both. For example, expenditure per student is a key policy measure which most directly impacts on the individual learner as it acts as a constraint on the learning environment in schools and student learning conditions in the classroom.

Chapter C *Access to education, participation and progression* provides indicators that are a mixture of outcome indicators, policy levers and context indicators. Internationalisation of education and progression rates are, for instance, outcomes measures to the extent that they indicate the results of policies and practices in the classroom, school and system levels. But they can also provide contexts for establishing policy by identifying areas where policy intervention is necessary to, for instance, address issues of inequity.

Chapter D *The learning environment and organisation of schools* provides indicators on instruction time, teachers working time and teachers' salaries that not only represent policy levers which can be manipulated but also provide contexts for the quality of instruction in instructional settings and for the outcomes of learners at the individual level. It also, for the first time, presents data from the Teaching and Learning International Survey (TALIS) on teacher beliefs, practices, and job satisfaction as well as the role of teacher appraisal and feedback and the school evaluation system.

Reader's Guide

Coverage of the statistics

Although a lack of data still limits the scope of the indicators in many countries, the coverage extends, in principle, to the entire national education system (within the national territory) regardless of the ownership or sponsorship of the institutions concerned and regardless of education delivery mechanisms. With one exception described below, all types of students and all age groups are meant to be included: children (including students with special needs), adults, nationals, foreigners, as well as students in open distance learning, in special education programmes or in educational programmes organised by ministries other than the Ministry of Education, provided the main aim of the programme is the educational development of the individual. However, vocational and technical training in the workplace, with the exception of combined school and work-based programmes that are explicitly deemed to be parts of the education system, is not included in the basic education expenditure and enrolment data.

Educational activities classified as "adult" or "non-regular" are covered, provided that the activities involve studies or have a subject matter content similar to "regular" education studies or that the underlying programmes lead to potential qualifications similar to corresponding regular educational programmes. Courses for adults that are primarily for general interest, personal enrichment, leisure or recreation are excluded.

Calculation of international means

For many indicators an OECD average is presented and for some an OECD total.

The OECD average is calculated as the unweighted mean of the data values of all OECD countries for which data are available or can be estimated. The OECD average therefore refers to an average of data values at the level of the national systems and can be used to answer the question of how an indicator value for a given country compares with the value for a typical or average country. It does not take into account the absolute size of the education system in each country.

The OECD total is calculated as a weighted mean of the data values of all OECD countries for which data are available or can be estimated. It reflects the value for a given indicator when the OECD area is considered as a whole. This approach is taken for the purpose of comparing, for example, expenditure charts for individual countries with those of the entire OECD area for which valid data are available, with this area considered as a single entity.

Note that both the OECD average and the OECD total can be significantly affected by missing data. Given the relatively small number of countries, no statistical methods are used to compensate for this. In cases where a category is not applicable (code "a") in a country or where the data value is negligible (code "n") for the corresponding calculation, the value zero is imputed for the purpose of calculating OECD averages. In cases where both the numerator and the denominator of a ratio are not applicable (code "a") for a certain country, this country is not included in the OECD average.

For financial tables using 1995 and 2000 data, both the OECD average and OECD total are calculated for countries providing 1995, 2000 and 2006 data. This allows comparison of the OECD average and OECD total over time with no distortion due to the exclusion of certain countries in the different years.

For many indicators an EU19 average is also presented. It is calculated as the unweighted mean of the data values of the 19 OECD countries that are members of the European Union for which data are available or can be estimated. These 19 countries are Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Ireland, Luxembourg, the Netherlands, Poland, Portugal, the Slovak Republic, Spain, Sweden and the United Kingdom.

Classification of levels of education

The classification of the levels of education is based on the revised International Standard Classification of Education (ISCED-97). The biggest change between the revised ISCED and the former ISCED (ISCED-76) is the introduction of a multi-dimensional classification framework, allowing for the alignment of the educational content of programmes using multiple classification criteria. ISCED is an instrument for compiling statistics on education internationally and distinguishes among six levels of education. The glossary available at *www.oecd.org/edu/eag2009* describes in detail the ISCED levels of education, and Annex 1 shows corresponding typical graduation ages of the main educational programmes by ISCED level.

Symbols for missing data

Six symbols are employed in the tables and charts to denote missing data:

- a Data is not applicable because the category does not apply.
- c There are too few observations to provide reliable estimates (*i.e.* there are fewer than 3% of students for this cell or too few schools for valid inferences). However, these statistics were included in the calculation of cross-country averages.
- m Data is not available.
- n Magnitude is either negligible or zero.
- S.E. Standard Error.
- w Data has been withdrawn at the request of the country concerned.
- x Data included in another category or column of the table (*e.g.* x(2) means that data are included in column 2 of the table).
- ~ Average is not comparable with other levels of education.

Further resources

The website *www.oecd.org/edu/eag2009* provides a rich source of information on the methods employed for the calculation of the indicators, the interpretation of the indicators in the respective national contexts and the data sources involved. The website also provides access to the data underlying the indicators as well as to a comprehensive glossary for technical terms used in this publication.

All post-production changes to this publication are listed at *www.oecd.org/edu/eag2009*.

The website *www.pisa.oecd.org* provides information on the OECD Programme for International Student Assessment (PISA), on which many of the indicators in this publication draw. The website *www.oecd.org/edu/talis* gives information on the Teaching and Learning International Survey (TALIS), on which two indicators are based (Indicators D5 and D6).

Education at a Glance uses the OECD's StatLinks service. Below each table and chart in *Education at Glance 2009* is a url which leads to a corresponding Excel workbook containing the underlying data for the indicator. These urls are stable and will remain unchanged over time. In addition, readers of the *Education at a Glance* e-book will be able to click directly on these links and the workbook will open in a separate window.

Codes used for territorial entities

These codes are used in certain charts. Country or territorial entity names are used in the text. Note that throughout the publication, the Flemish Community of Belgium and the French Community of Belgium may be referred to as "Belgium (Fl.)" and "Belgium (Fr.)" respectively.

AUS	Australia	ITA	Italy
AUT	Austria	JPN	Japan
BEL	Belgium	KOR	Korea
BFL	Belgium (Flemish Community)	LUX	Luxembourg
BFR	Belgium (French Community)	MEX	Mexico
BRA	Brazil	NLD	Netherlands
CAN	Canada	NZL	New Zealand
CHL	Chile	NOR	Norway
CZE	Czech Republic	POL	Poland
DNK	Denmark	PRT	Portugal
ENG	England	RUS	Russian Federation
EST	Estonia	SCO	Scotland
FIN	Finland	SVK	Slovak Republic
FRA	France	SVN	Slovenia
DEU	Germany	ESP	Spain
GRC	Greece	SWE	Sweden
HUN	Hungary	CHE	Switzerland
ISL	Iceland	TUR	Turkey
IRL	Ireland	UKM	United Kingdom
ISR	Israel	USA	United States

Chapter

A

The Output of Educational Institutions and the Impact of Learning

INDICATOR A1

TO WHAT LEVEL HAVE ADULTS STUDIED?

This indicator profiles the educational attainment of the adult population as captured through formal educational qualifications. As such, it provides a proxy for the knowledge and skills available to national economies and societies. To gauge the evolution of available skills, trend data on growth in the number of people with different levels of educational attainment have been added this year. This indicator also provides data related to the supply of and demand for skilled workers across OECD countries.

Key results

Chart A1.1. Average annual growth in the population with tertiary education (1998-2006)

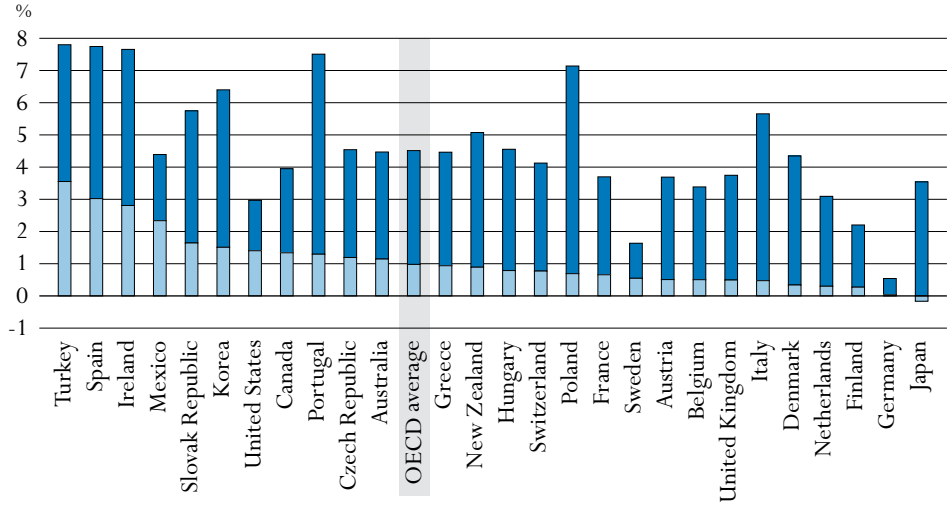
The chart depicts the annual average growth rate in the number of 25-64 year-olds with tertiary education related to the increase in attainment levels and to the overall population growth.

Average annual increase in the number of individuals with tertiary education due to:

Attainment rate growth

Overall population growth

The overall growth in the number of individuals who have completed tertiary education provides a complementary picture to that of attainment levels alone. Countries with growing populations will not only have to cope with more young individuals eager to invest in tertiary education but also an increasing overall demand linked to a growing population. The number of individuals that have attained tertiary education has increased by 7% per year or more in Ireland, Poland, Portugal, Spain, and Turkey. In Ireland, Spain and Turkey the overall population growth has put additional strains on the higher education system, whereas this has been of less concern in countries such as Germany and Japan.



Countries are ranked in descending order of the average annual increase in the number of individuals with tertiary education due to overall population growth.

Source: OECD. Table A1.4 and Table A1.5. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664024334566

Other highlights of this indicator

- With the exception of Germany, Japan, Mexico, Poland, Turkey and the United States, the number of individuals available to the labour market with below secondary education decreased between 1998 and 2006, and in some countries substantially so.
- Upper secondary education has become the norm among younger cohorts in almost all OECD countries. On average across OECD countries, the proportion of 25-34 year-olds having attained upper secondary education is 22 percentage points higher than that of 55-64 year-olds.
- Since 1998, tertiary attainment levels among young adults have also increased significantly, to 34% among 25-34 year-olds, on average across OECD countries. This suggests that overall tertiary attainment levels will continue to rise in the coming years. In France, Ireland, Japan and Korea, there is a difference of 25 percentage points or more in the tertiary attainment of the oldest and youngest age cohorts.
- Tertiary educated young individuals in the Czech Republic, Hungary, Iceland, Luxembourg, the Netherlands, and the Slovak Republic and in the partner country Slovenia continue to have good prospects of finding a skilled job. In these countries, 85% or more of tertiary educated 25-34 year-olds are employed in skilled occupations, indicating that those with higher education are in strong demand.
- Since 1998, young tertiary educated individuals in Austria, Finland, Germany and Switzerland have improved their prospects of finding a skilled job. At the same time, young workers without a tertiary education appear to have a good chance relative to older workers in finding a skilled job, indicating a potential gap between supply and demand of high-end skills in these countries.

A1

Policy context

A well-educated and well-trained population is essential for the social and economic well-being of countries. Education plays a key role in providing individuals with the knowledge, skills and competencies needed to participate effectively in society and in the economy. It also contributes to the expansion of scientific and cultural knowledge. Educational attainment is a commonly used proxy for the stock of "human capital", that is, the skills available in the population and the labour force. International comparisons of educational attainment assume that the skills and knowledge taught at each level of education are similar among countries.

In fact, the skill composition of populations varies substantially among countries, depending on their industry structure and general level of economic development. It is important to understand the mix of skills available, as well as changes in the skill structure among different age groups, in order to gain an idea of the current and future supply of skills in the labour market. While the current economic downturn makes it difficult to forecast future skill demands, it will increase the incentives for individuals to invest in education, as worsening labour market prospects lower the opportunity costs of education, such as earnings foregone while studying.

As overall demand for education is likely to rise, thus increasing the supply of more highly educated individuals to the labour market, it will be crucial to track the demand for these more skilled workers in the coming years. The International Standard Classification of Occupations (ISCO) provides an opportunity to relate what is produced by the education system to the demands of the labour market. In essence, occupational classifications relate to the level of economic development and demand for skills, and as such provide a measure of the overall need for education. A key issue for any education system is to supply the labour market with the level and diversity of skills that employers require. The match between educational attainment and occupations can thus be seen as a signal of demand for education.

Evidence and explanations

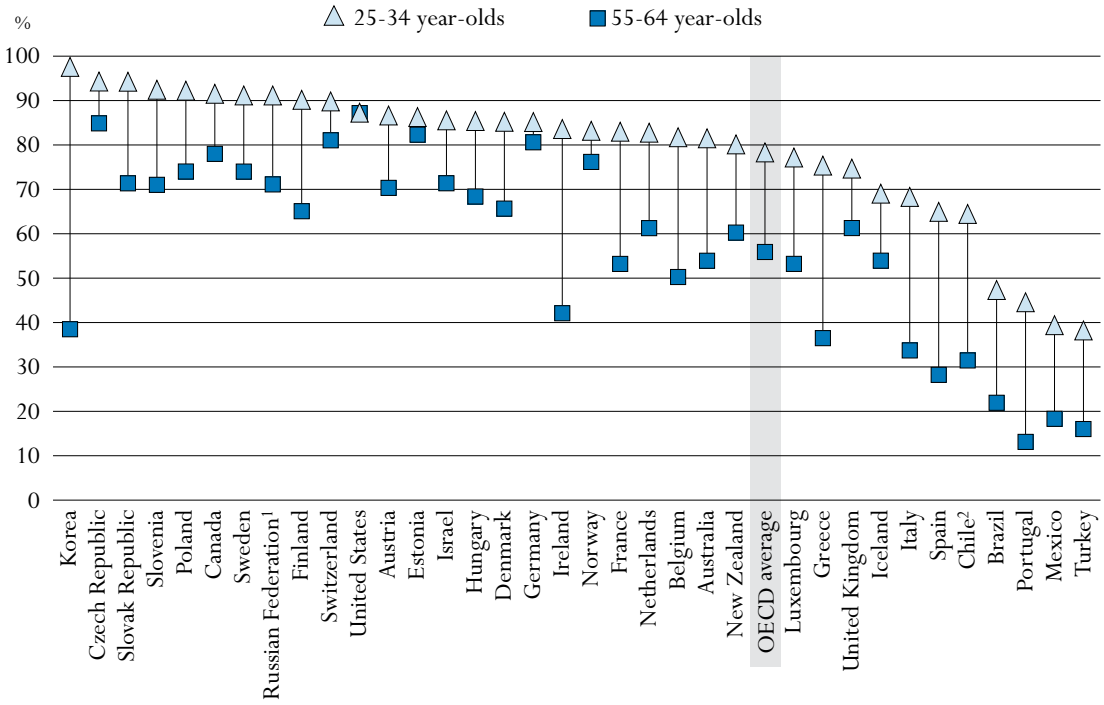
Attainment levels in OECD countries

On average across OECD countries, fewer than one-third of adults (30%) have attained only primary or lower secondary levels of education, 44% of the adult population has attained an upper secondary education and more than one-quarter (27%) have attained a tertiary level qualification (Table A1.1a). However, countries differ widely in the distribution of educational attainment across their populations.

In 23 out of 29 OECD countries – as well as in the partner countries Estonia, Israel, the Russian Federation and Slovenia – 60% or more of the population aged 25 to 64 has completed at least upper secondary education (Table A1.2a). Some countries show a different profile, however. For instance, in Mexico, Portugal and Turkey and the partner country Brazil, more than two thirds of the population aged 25 to 64 has not completed upper secondary education. Overall, a comparison of the levels of educational attainment in younger versus older age groups indicates marked progress with regard to attainment of upper secondary education, except in the United States (Chart A1.2). On average across OECD countries, the proportion of 25-34 year-olds having attained at least upper secondary education is 22 percentage points higher than that of 55-64 year-olds. This increase has been particularly dramatic in Belgium, Greece, Ireland, Italy, Korea, Portugal and Spain, as well as in the partner country Chile, all of which have seen an increase in upper secondary attainment of 30 percentage points or more.

Chart A1.2. Population that has attained at least upper secondary education (2007)

Percentage, by age group



1. Year of reference 2002.
2. Year of reference 2004.

Countries are ranked in descending order of the percentage of the 25-34 year-olds who have attained at least upper secondary education.

Source: OECD. Table A1.2a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664024334566

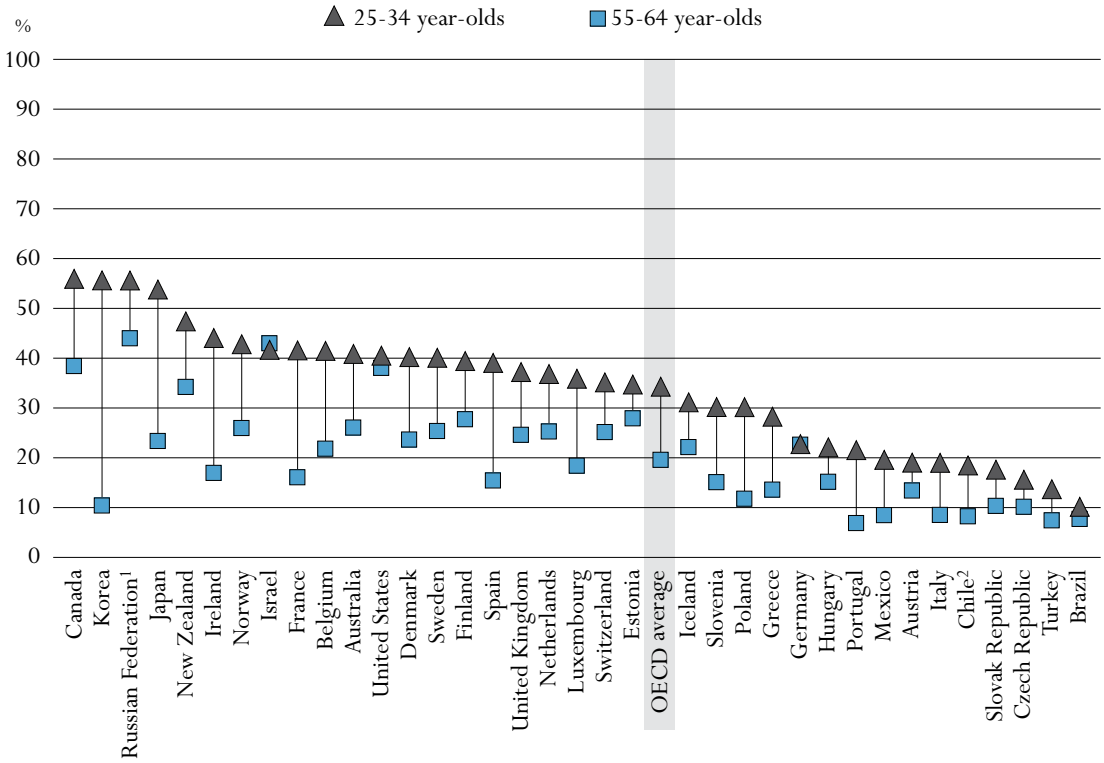
In countries where the adult population generally has a high level of educational attainment, differences among age groups are less pronounced (Table A1.2a). In the 10 OECD countries where more than 80% of 25-64 year-olds have at least upper secondary attainment, the difference in the proportion of 25-34 year-olds and 55-64 year-olds having attained at least upper secondary level is, on average, 13 percentage points. In Germany and the United States, the proportion of population with upper secondary education and more is almost the same for all age groups. For countries with more room for growth, the average gain in attainment between these age groups is typically large, but situations differ widely. In Norway, the difference between 25-34 year-olds and 55-64 year-olds is 7 percentage points; in Korea it is 59 percentage points.

In almost all countries, 25-34 year-olds have higher tertiary attainment levels than the generation about to leave the labour market (55-64 year-olds). On average across OECD countries, 34% of the younger cohort has completed tertiary education, compared with 20% of the oldest cohort, while the average for the total population of 25-64 year-olds is 28%. The expansion of tertiary education differs substantially among countries. In France, Ireland, Japan and Korea there is a difference of 25 percentage points or more in tertiary attainment of the oldest and youngest age cohorts (Table A1.3a).

This rapid expansion of the tertiary sector has put Japan and Korea in the top group together with Canada and the partner country the Russian Federation with over 50% of the younger cohort having attained tertiary education (Chart A1.3). Attainment levels between the youngest and oldest cohorts have changed by 5 percentage points or less in Austria, the Czech Republic, the United States and the partner country Brazil and close to zero or negative in Germany and the partner country Israel. Attainment levels in the total population are still substantially above the OECD average in the United States and Israel, whereas in the case of the other four countries in this group, attainment levels are below the OECD average.

Chart A1.3. Population that has attained at least tertiary education (2007)

Percentage, by age group



1. Year of reference 2002.
2. Year of reference 2004.

Countries are ranked in descending order of the percentage of the 25-34 year-olds who have attained at least tertiary education.

Source: OECD. Table A1.3a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664024334566

Trends in attainment levels in OECD countries

Measurements of the progress in attainment levels across age cohorts provide a rough representation of the evolution of human capital in different countries. Trends in attainment levels provide a more nuanced picture, enabling examination of the evolution of attainment over time. Trends will in some circumstances reveal slight differences from analyses of attainment levels by age cohorts, because attainment levels are not evenly distributed within an age cohort.

Attainment levels have also risen as a consequence of 25-64 adults having acquired higher qualifications after completing initial education. Furthermore, immigration can in some countries make a big impact on attainment levels over time.

Trends in attainment levels over time thus provide a complementary picture of the progress of human capital available to the economy and society. Table A1.4 presents the trends in educational attainment in the adult population (25-64 year-olds). In 1997, on average across OECD countries, 37% of the population had not completed upper secondary education, 43% had completed upper secondary and post-secondary non-tertiary education and another 20% had completed tertiary education. These figures have changed quite dramatically over the past ten years as a consequence of efforts to move people into higher educational levels. The proportion of the adult population with below upper secondary education has fallen to 30%, the proportion with tertiary attainment has risen to 27%, while the proportion of the population with upper secondary and post-secondary non-tertiary education has remained unchanged at 43%.

The big change in the educational attainment of the adult population over the past decade has thus been at the low and high ends of the skill distribution. The average annual growth rate in tertiary attainment levels has exceeded 5% in Italy, Poland, and Portugal, although it should be noted that overall levels of tertiary attainment in these countries were low at the beginning of the decade. The proportion of the population with below upper secondary education decreased by 5% or more per year in the Czech Republic, Finland, Hungary and Poland. Only Portugal and Spain have seen growth rates above 5% for upper secondary and post-secondary non-tertiary attainment.

Attainment levels offer good overall assessment of the skill distribution and how this distribution has evolved over time. However, as noted in Chart A1.1 the actual production of the education system can, in many instances, diverge quite substantially from what is apparent in measures of attainment levels. Table A1.5 provides estimates of the average annual growth of the total number of individuals in the adult population in different educational levels between 1998 and 2006. The number of individuals with tertiary education available to the labour market has grown by an average of 4.5% per year across OECD countries. Some of this growth is due to individuals in older age cohorts, with lower levels of tertiary attainment, having retired. Nevertheless, the total investments made in human capital and the overall change in the supply of highly educated individuals during this period is impressive.

The average annual growth in the adult population with an upper secondary and post-secondary non-tertiary education has been substantially below that of tertiary education. This reflects the fact that many individuals have already achieved this level of education. The total number of individuals who have not completed an upper secondary education has decreased by an average of 1.9% per year during this period. With the exception of Germany, Japan, Mexico, Poland, Turkey and the United States, the number of individuals with below secondary education available to the labour market decreased between 1998 and 2006, and in some countries substantially so.

Attainment levels and links with skilled jobs

Governments that seek to expand tertiary education have often considered that an advanced knowledge economy needs more high-level skills and thus requires educating a much greater proportion of the workforce beyond the secondary level. The capacity of the labour market to accommodate increasing numbers of individuals with tertiary education depends on industry

structure as well as the general level of economic development. The composition of occupational categories in a country captures these factors to some extent. The distribution of occupations reflects the importance of different sectors and of high-end skills for the economy. The ISCO classification of occupations thus provides a further opportunity to look more closely at the match between the education system and the labour market in different countries.

The prospect of higher educated individuals finding a skilled job depends to a large extent on tertiary attainment levels relative to skilled jobs in the country and the change in these two components of supply and demand over time. Table A1.6 presents the proportion of tertiary and below tertiary educated individuals in skilled occupations, by age cohorts. The ISCO occupational categories 1-3 are classified as skilled jobs and include: Legislators, senior officials and managers (ISCO 1); Professionals (ISCO 2); and Technician and associate professionals (ISCO 3). For more extensive explanations on occupational distributions see *Education at a Glance 2008*. Table A1.6 confirms expectations that higher education provides greater access to more skilled occupations. On average across OECD countries, about a quarter of those without a tertiary qualification succeed in obtaining a skilled job; for those with tertiary qualifications this figure rises to more than 80%. The overall proportions of individuals holding skilled jobs have been relatively stable over the period (1998 and 2006) for both tertiary and below tertiary educated individuals, suggesting that the demand-side has kept up with the influx of more educated individuals.

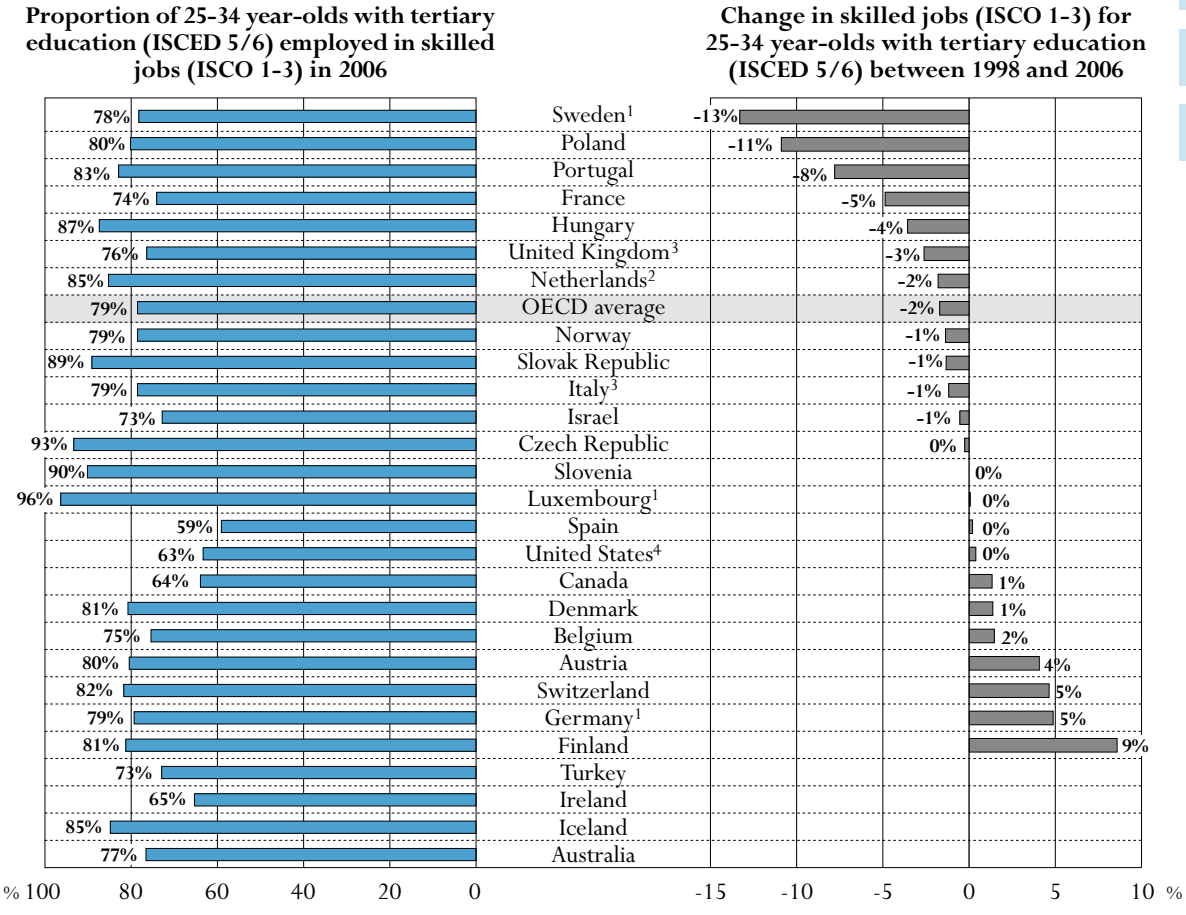
Younger cohorts are typically more sensitive to changes in supply and demand for skills as they try to get a foothold in the labour market. Column 6 in Table A1.6 shows the percentage point change in the proportion 25-34 year-olds with tertiary education holding skilled jobs between 1998 and 2006. There has been a marginal decrease in the proportion of young individuals who have succeeded in obtaining skilled jobs during the period, but this differs widely among countries. Chart A1.4 shows these changes (on the right-hand side) and the percentage of the 25-34 year-old cohort currently (2006) employed in skilled jobs (on the left-hand side).

Young tertiary educated individuals in Sweden, Poland and Portugal have seen the labour market for skilled jobs deteriorate over the period with 13, 11 and 8 percentage point decreases in the proportion of 25-34 year-olds employed in skilled jobs. At the other extreme, tertiary educated 25-34 year-olds in Austria, Finland, Germany and Switzerland have seen their prospects of finding a skilled job improved between 4 and 9 percentage points over the period. Both of these groups of countries have reverted to the OECD mean, where countries now cluster just above or at the OECD average, with 79% of the younger tertiary educated cohort employed in skilled jobs.

Higher educated young individuals in the Czech Republic, Hungary, Iceland, Luxembourg, the Netherlands, and the Slovak Republic and in the partner country Slovenia continue to have good prospects for finding a skilled job. In these countries, 85% or more of the tertiary educated 25-34 year-olds are employed in skilled jobs, indicating that those with higher education are still in strong demand. Tertiary educated individuals in Canada, Ireland, Spain and the United States generally have more difficulty in finding jobs to match their skill levels.

Another way to look at the supply of and demand for high-end skills is to examine how access to skilled jobs changes across age cohorts. As individuals accumulate more human capital over time, from a lifelong learning perspective one would expect more individuals to move up into skilled jobs progressively across age cohorts. This seems particularly true in countries with strong vocational training systems.

Chart A1.4. Proportion of 25-34 year-olds with tertiary education employed in skilled jobs in 2006 and change in skilled jobs for 25-34 year-olds with tertiary education between 2006 and 1998



1. 1999 instead of 1998.
2. 2000 instead of 1998.
3. Italy: change in survey methodology between 1998 and 2006 affects comparability. United Kingdom: change in national occupation coding frame in 2000 affects comparability for ISCO.
4. ISCO groupings 3 and 9 in 2006 are not separated and thus distributed among remaining ISCO classification.

Countries are ranked in descending order of the change in the proportion of 25-34 year-olds with tertiary education in skilled jobs between 1998 and 2006.

Source: OECD. Table A1.6. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664024334566

Table A1.6, column 12 shows the difference between the proportion of 25-34 year-olds and of 45-54 year-olds with below tertiary education in skilled jobs. Consistent with the notion that individuals acquire skills through work experience and job-related training over their life spans, one would anticipate finding fewer younger workers than older workers in skilled jobs.

At the same time, one might argue that if too few higher educated individuals are entering the labour market, employers will be forced to take in younger, lower educated individuals, flattening the age advantage among lower educated individuals – or even turning the advantage

towards the younger cohorts. The opposite applies if too many individuals with higher levels of education are entering the labour market; young individuals with lower levels of education will find it increasingly difficult to find skilled jobs, increasing the advantage of older cohorts.

On average across OECD countries, the proportion of the age cohort in skilled jobs among those with below tertiary education increases by 3 percentage points between the 25-34 and 45-54 year-olds, indicating that more experienced workers have some advantage in obtaining a skilled job. In Hungary, the Slovak Republic and Switzerland, more experienced workers do not have an advantage, and in Austria, Finland, Germany and the partner country Israel the advantage of finding a skilled job is tilted to those with less experience in the labour market.

Chart A1.5 combines these two approaches, plotting changes in the match of tertiary educated 25-34 year-olds to skilled jobs between 2006 and 1998 (horizontal axis) against the difference in the proportion 25-34 year-olds and 45-54 year-olds with below tertiary education in skilled jobs (vertical axis). The OECD average for age advantage (3% fewer younger than older workers in skilled jobs) is used as a benchmark (indicated by the horizontal axis crossing the vertical axis at this point).

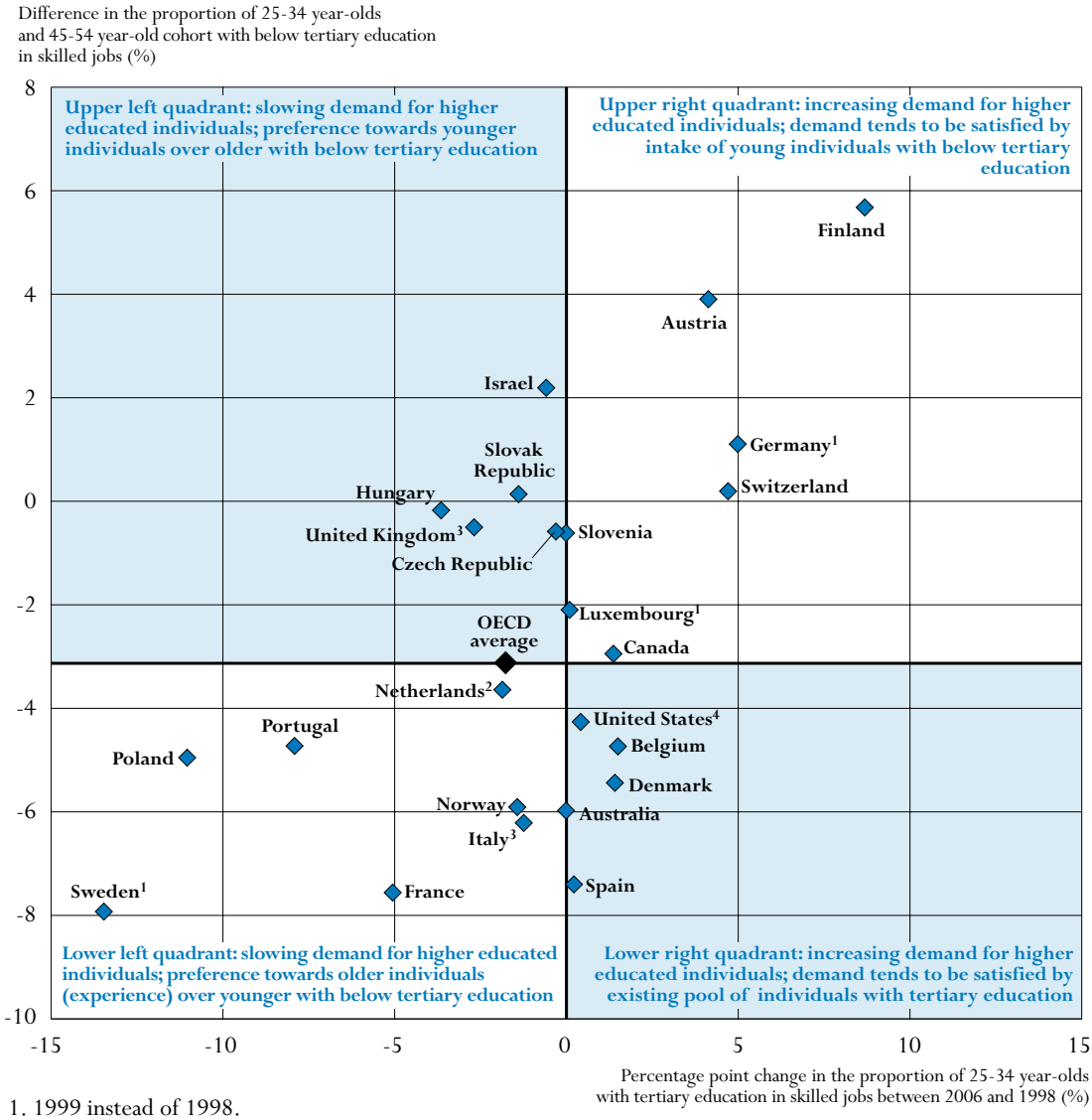
Countries below the horizontal axis generally have a steeper age (experience) advantage than the average across OECD countries, whereas the opposite is true for countries above this line. Young tertiary educated individuals in countries on the left-side of the vertical axis have seen their prospects of finding a skilled job deteriorate over the period; for individuals in countries on the right-hand side of the chart, the prospect of finding a skilled job has improved during the period.

Young tertiary educated individuals in France, Poland, Portugal and Sweden have seen their prospects of finding a skilled job deteriorate during the period. In addition, young individuals who have not attained a tertiary education are disadvantaged, compared with older workers, in finding a skilled job. This suggests that the expansion of higher education might have outpaced demand for skilled workers in recent years. Some caution is needed in interpreting these results, however, as some countries are still above the OECD mean in terms of matching young higher educated individuals to skilled occupations. It is similarly difficult to assess the steepness of the age (experience) advantage in finding a skilled job.

A stronger signal, however, that the demand for higher educated individuals has outstripped the supply can be made for countries in the opposite corner. In Austria, Finland, Germany and Switzerland, young tertiary educated individuals have improved their prospects in finding a skilled job over the period. At the same time young workers without a tertiary education have had an advantage over more experienced workers in finding skilled jobs. This suggests that employers have fewer choices and must take in younger, less educated workers to fill these skilled positions.

Again, some caution is needed in interpreting these data as changes in education systems, shifts in industries and overall demand for certain skills can make younger individuals more attractive to employers than older and more experienced workers. It is therefore important to also consult other labour market indicators such as employment and unemployment (Indicator A6), earnings (Indicator A7), incentives to invest in education (Indicator A8), and transition from school to work (Indicator C3). However, these indicators signal a similar message for a number of countries, as conveyed in this section of *Education at a Glance*.

Chart A1.5. Supply of and demand for young individuals (25-34 year-olds) to skilled jobs (ISCO 1-3), 1998-2006



1. 1999 instead of 1998.
2. 2000 instead of 1998.
3. Italy: change in survey methodology between 1998 and 2006 affects comparability. The United Kingdom: change in national occupation coding frame in 2000 affects comparability for ISCO.
4. ISCO groupings 3 and 9 in 2006 are not separated and thus distributed among remaining classification.

Source: OECD. Table A1.6. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Definitions and methodologies

Data on population and educational attainment are taken from OECD and Eurostat databases, which are compiled from National Labour Force Surveys. See Annex 3 (*www.oecd.org/edu/eag2009*) for national sources.

Attainment profiles are based on the percentage of the population aged 25 to 64 that has completed a specified level of education. The International Standard Classification of Education (ISCED-97)

is used to define the levels of education. See Annex 3 (*www.oecd.org/edu/eag2009*) for a description of the mapping of ISCED-97 education programmes and attainment levels for each country.

Successful completion of upper secondary education means the achievement of upper secondary programmes type A, B or C, which are of a similar length; completion of type C programmes (labour market destination) of significantly shorter duration are not classified as upper secondary attainment.

The data for Table A1.6 are provided by the Supply of Skills working group of INES Network on Labour Market, Economic and Social Outcomes of Learning (formerly called INES Network B). The information is based on collection of ISCO (International Standard Classification of Occupations) and ISCED information from OECD countries. ISCO is the most widely used classification system for grouping occupations according to the tasks and duties involved. The ISCO system is maintained by the International Labour Organisation (ILO).

The ISCO system facilitates international communication regarding jobs, makes international comparisons possible, and serves as a model for the development of national occupation classification systems. In the ISCO system, an occupation is classified into one of nine major groups, and then into sub-groups. The analysis in Indicator A1 is at the major group level.

Like other international classification systems, ISCO changes only when major revisions are carried out. This means that ISCO does not fully capture changes in the labour market over time. Occupations evolve, as do their competency requirements. Some types of occupations disappear and others appear. The nature of these new occupations is not always fully described in the ISCO classification system. Accordingly, time series comparisons using the ISCO system should be interpreted with caution, considering the limitations of a static classification system.

Further references

For further information on the ISCO categories, see *Education at a Glance 2008*.

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/664024334566

- ***Table A1.1b. Educational attainment: Male population (2007)***
- ***Table A1.1c. Educational attainment: Female population (2007)***
- ***Table A1.2b. Population of males with at least upper secondary education (2007)***
- ***Table A1.2c. Population of females with at least upper secondary education (2007)***
- ***Table A1.3b. Population of males with tertiary education (2007)***
- ***Table A1.3c. Population of females with tertiary education (2007)***

Table A1.1a.

Educational attainment: adult population (2007)

Distribution of the 25-64 year-old population, by highest level of education attained

		Pre-primary and primary education	Lower secondary education	ISCED 3C (short programme)	Upper secondary education: ISCED 3C (long programme)/3B	Upper secondary education: ISCED 3A	Post-secondary non-tertiary education	Tertiary education: Type B	Tertiary education: Type A	Tertiary education: Advanced research programmes	All levels of education
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD countries	**Australia**	8	24	x(5)	x(5)	31	3	10	24	x(8)	100
	Austria	x(2)	18	1	47	6	9	7	10	x(8)	100
	Belgium	14	18	a	10	24	2	18	14	1	100
	Canada	4	9	a	x(5)	26	12	24	25	x(8)	100
	Czech Republic	n	9	a	41	35	a	x(8)	14	x(8)	100
	Denmark	1	22	2	37	6	n	7	25	1	100
	Finland	10	10	a	a	44	n	15	20	1	100
	France	13	18	a	31	11	n	11	15	1	100
	Germany	3	13	a	50	3	7	9	14	1	100
	Greece	26	11	3	3	26	8	7	15	n	100
	Hungary	1	19	a	31	28	2	n	17	n	100
	Iceland	3	24	9	13	10	11	4	25	1	100
	Ireland	15	17	n	x(5)	25	11	11	21	n	100
	Italy	15	32	1	7	30	1	1	13	n	100
	Japan	x(5)	x(5)	x(5)	x(5)	59	a	18	23	x(8)	100
	Korea	11	12	a	x(5)	43	a	10	24	x(8)	100
	Luxembourg	18	9	7	17	19	4	9	17	1	100
	Mexico	47	20	a	a	18	a	a	15	x(8)	100
	Netherlands	7	20	x(4)	16	23	3	2	28	1	100
	New Zealand	x(2)	21	8	10	9	11	16	25	x(8)	100
	Norway	n	21	a	30	11	3	2	31	1	100
	Poland	x(2)	14	a	33	31	4	x(8)	19	x(8)	100
	Portugal	56	16	x(5)	x(5)	13	1	x(8)	13	1	100
	Slovak Republic	1	12	x(4)	35	38	x(5)	1	13	n	100
	Spain	22	27	a	8	14	n	9	19	1	100
	Sweden	6	10	a	x(5)	47	6	9	23	x(8)	100
	Switzerland	3	9	1	46	6	3	10	19	3	100
	Turkey	61	10	a	8	10	a	x(8)	11	x(8)	100
	United Kingdom	n	14	18	30	7	n	9	22	1	100
	United States	4	8	x(5)	x(5)	48	x(5)	9	30	1	100
		Below upper secondary education			*Upper secondary level of education*			*Tertiary level of education*			
	OECD average	*30*			*44*			*27*			
	EU19 average	*29*			*46*			*24*			
Partner countries	**Brazil**	48	15	x(5)	x(5)	27	a	x(8)	10	x(8)	100
	Chile[1]	24	26	x(5)	x(5)	37	a	3	10	x(8)	100
	Estonia	1	10	a	5	44	7	11	22	n	100
	Israel	12	8	a	9	27	a	15	27	1	100
	Russian Federation[2]	3	8	x(4)	16	18	x(4)	34	20	n	100
	Slovenia	2	16	a	28	31	a	11	10	2	100

Note: Due to discrepancies in the data, averages have not been calculated for each column individually.
1. Year of reference 2004.
2. Year of reference 2002.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664024334566

A1

Table A1.2a.

Population with at least upper secondary education[1] (2007)

Percentage, by age group

		Age group				
		25-64	25-34	35-44	45-54	55-64
		(1)	(2)	(3)	(4)	(5)
OECD countries	Australia	68	81	70	64	54
	Austria	80	87	84	78	70
	Belgium	68	82	75	63	50
	Canada	87	91	90	86	78
	Czech Republic	91	94	94	89	85
	Denmark	75	85	80	71	66
	Finland	81	90	87	81	65
	France	69	83	74	63	53
	Germany	84	85	86	85	81
	Greece	60	75	67	53	37
	Hungary	79	85	83	79	68
	Iceland	65	69	70	62	54
	Ireland	68	83	72	60	42
	Italy	52	68	56	48	34
	Korea	78	97	92	65	39
	Luxembourg	66	77	67	62	53
	Mexico	33	39	37	29	18
	Netherlands	73	83	77	71	61
	New Zealand	72	80	74	70	60
	Norway	79	83	80	77	76
	Poland	86	92	90	86	74
	Portugal	27	44	27	20	13
	Slovak Republic	87	94	92	86	71
	Spain	51	65	56	44	28
	Sweden	85	91	90	83	74
	Switzerland	86	90	87	85	81
	Turkey	29	38	26	22	16
	United Kingdom	68	75	69	66	61
	United States	88	87	88	89	87
	OECD average	*70*	*79*	*74*	*67*	*57*
	EU19 average	*71*	*81*	*75*	*68*	*57*
Partner countries	Brazil	37	47	37	31	22
	Chile[2]	50	64	52	44	32
	Estonia	89	86	94	93	82
	Israel	80	85	83	77	71
	Russian Federation[3]	88	91	94	89	71
	Slovenia	82	92	84	78	71

1. Excluding ISCED 3C short programmes.
2. Year of reference 2004.
3. Year of reference 2002.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

StatLink http://dx.doi.org/10.1787/664024334566

Table A1.3a.

Population with tertiary education (2007)

Percentage of the population that has attained tertiary-type B education or tertiary-type A and advanced research programmes, by age group

	Tertiary-type B education					Tertiary-type A and Advanced research programmes					Total tertiary				
	25-64	25-34	35-44	45-54	55-64	25-64	25-34	35-44	45-54	55-64	25-64	25-34	35-44	45-54	55-64
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD countries															
Australia	10	10	9	10	9	24	31	25	22	18	34	41	34	32	27
Austria	7	6	7	8	7	10	13	12	9	7	18	19	19	17	14
Belgium	18	23	19	16	13	14	18	16	12	9	32	41	36	28	22
Canada	24	26	26	23	18	25	29	26	21	21	48	56	53	45	39
Czech Republic	x(11)	x(12)	x(13)	x(14)	x(15)	14	15	14	14	11	14	15	14	14	11
Denmark	7	8	7	6	5	25	32	27	24	19	32	40	34	30	24
Finland	15	8	20	18	15	21	32	22	17	14	36	39	43	36	28
France	11	18	12	8	5	16	24	17	12	11	27	41	29	20	17
Germany	9	6	9	10	9	16	16	16	15	14	24	23	26	25	23
Greece	7	9	9	6	4	15	19	17	14	10	23	28	26	21	14
Hungary	n	1	n	n	n	18	21	17	16	16	18	22	17	16	16
Iceland	4	3	4	4	2	26	28	31	23	20	30	31	35	28	23
Ireland	11	14	13	9	6	21	30	22	16	11	32	44	34	25	17
Italy	1	1	1	1	n	13	18	13	11	9	14	19	14	11	9
Japan	18	25	22	16	9	23	29	24	25	15	41	54	46	41	24
Korea	10	22	10	4	1	24	34	30	17	10	35	56	40	21	11
Luxembourg	9	12	8	7	8	18	24	19	15	11	27	36	27	22	19
Mexico	1	1	1	1	1	15	18	15	14	8	16	19	16	15	9
Netherlands	2	2	2	2	2	29	35	29	28	24	31	37	31	30	26
New Zealand	16	14	15	17	17	25	33	26	22	18	41	47	41	39	35
Norway	2	2	2	3	3	32	41	34	28	24	34	43	36	31	26
Poland	x(11)	x(12)	x(13)	x(14)	x(15)	19	30	18	13	12	19	30	18	13	12
Portugal	x(11)	x(12)	x(13)	x(14)	x(15)	14	21	14	10	7	14	21	14	10	7
Slovak Republic	1	1	1	1	1	13	17	12	13	10	14	17	13	14	11
Spain	9	13	11	6	4	20	26	22	17	12	29	39	32	23	16
Sweden	9	8	9	9	8	23	31	22	20	18	31	40	31	29	26
Switzerland	10	9	11	10	9	21	26	23	20	17	31	35	34	30	26
Turkey	x(11)	x(12)	x(13)	x(14)	x(15)	11	14	10	9	8	11	14	10	9	8
United Kingdom	9	8	10	10	8	23	29	22	21	17	32	37	32	31	25
United States	9	9	10	10	8	31	31	33	30	30	40	40	42	40	39
OECD average	***9***	***10***	***10***	***9***	***7***	***20***	***26***	***21***	***18***	***14***	***28***	***34***	***29***	***25***	***20***
EU19 average	***8***	***9***	***9***	***9***	***7***	***18***	***24***	***19***	***16***	***13***	***24***	***31***	***26***	***22***	***18***
Partner countries															
Brazil	x(11)	x(12)	x(13)	x(14)	x(15)	10	10	10	10	8	10	10	10	10	8
Chile[1]	3	4	3	2	1	10	14	9	9	8	13	18	13	11	9
Estonia	11	9	12	13	10	22	25	22	22	18	33	35	34	35	28
Israel	15	13	16	16	16	28	28	30	28	27	44	42	46	44	43
Russian Federation[2]	33	34	37	34	26	21	21	21	20	19	54	55	58	54	44
Slovenia	11	12	10	11	9	12	18	13	9	7	22	30	23	19	16

1. Year of reference 2004.
2. Year of reference 2002.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664024334566

Table A1.4.

Trends in educational attainment: 25-64 year-old population (1997-2007)

Percentage, by age group

OECD countries		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2006/1998 Average annual growth rate
Australia	Below upper secondary	47	44	43	41	41	39	38	36	35	33	32	(3.4)
	Upper secondary and post-secondary non-tertiary	29	31	31	31	30	30	31	33	33	34	34	1.2
	Tertiary education	24	25	27	27	29	31	31	31	32	33	34	3.3
Austria	Below upper secondary	26	26	25	24	23	22	21	20	19	20	20	(3.3)
	Upper secondary and post-secondary non-tertiary	63	61	61	62	63	64	64	62	63	63	63	0.4
	Tertiary education	11	14	14	14	14	15	15	18	18	18	18	3.2
Belgium	Below upper secondary	45	43	43	41	41	39	38	36	34	33	32	(3.3)
	Upper secondary and post-secondary non-tertiary	30	31	31	31	32	33	33	34	35	35	36	1.4
	Tertiary education	25	25	27	27	28	28	29	30	31	32	32	2.9
Canada	Below upper secondary	22	21	20	19	18	17	16	16	15	14	13	(4.8)
	Upper secondary and post-secondary non-tertiary	40	40	40	41	40	40	40	40	39	39	38	(0.6)
	Tertiary education	37	38	39	40	42	43	44	45	46	47	48	2.6
Czech Republic	Below upper secondary	15	15	14	14	14	12	14	11	10	10	9	(5.0)
	Upper secondary and post-secondary non-tertiary	74	75	75	75	75	76	74	77	77	77	77	0.3
	Tertiary education	11	10	11	11	11	12	12	12	13	14	14	3.3
Denmark	Below upper secondary	m	21	20	21	19	19	19	19	19	18	25	(1.9)
	Upper secondary and post-secondary non-tertiary	m	53	53	52	52	52	49	48	47	47	43	(1.5)
	Tertiary education	m	25	27	26	28	30	32	33	34	35	32	4.0
Finland	Below upper secondary	32	31	28	27	26	25	24	22	21	20	19	(5.1)
	Upper secondary and post-secondary non-tertiary	39	39	40	41	42	42	43	43	44	44	44	1.7
	Tertiary education	29	30	31	32	32	33	33	34	35	35	36	1.9
France	Below upper secondary	41	39	38	37	36	35	35	34	33	33	31	(2.3)
	Upper secondary and post-secondary non-tertiary	39	40	40	41	41	41	41	41	41	41	42	0.3
	Tertiary education	20	21	21	22	23	24	24	24	25	26	27	3.0
Germany	Below upper secondary	17	16	19	18	17	17	17	16	17	17	16	0.4
	Upper secondary and post-secondary non-tertiary	61	61	58	58	59	60	59	59	59	59	60	(0.3)
	Tertiary education	23	23	23	23	23	23	24	25	25	24	24	0.5
Greece	Below upper secondary	56	54	52	51	50	48	47	44	43	41	40	(3.3)
	Upper secondary and post-secondary non-tertiary	29	29	31	31	32	33	34	35	36	37	37	2.9
	Tertiary education	16	17	17	18	18	19	19	21	21	22	23	3.5
Hungary	Below upper secondary	37	37	33	31	30	29	26	25	24	22	21	(6.2)
	Upper secondary and post-secondary non-tertiary	51	50	54	55	56	57	59	59	59	60	61	2.4
	Tertiary education	12	13	14	14	14	14	15	17	17	18	18	3.8
Iceland	Below upper secondary	44	45	44	45	43	41	40	39	37	37	35	(2.4)
	Upper secondary and post-secondary non-tertiary	35	34	34	32	32	33	31	32	32	34	35	(0.2)
	Tertiary education	21	21	22	23	25	26	29	29	31	30	30	4.4
Ireland	Below upper secondary	50	49	45	54	45	40	38	37	35	34	32	(4.4)
	Upper secondary and post-secondary non-tertiary	27	30	35	28	32	35	35	35	35	35	35	2.0
	Tertiary education	23	21	20	19	24	25	26	28	29	31	32	4.8
Italy	Below upper secondary	m	59	58	58	57	56	52	51	50	49	48	(2.4)
	Upper secondary and post-secondary non-tertiary	m	32	33	33	33	34	38	37	38	38	39	2.3
	Tertiary education	m	9	9	9	10	10	10	12	12	13	14	5.2
Japan	Below upper secondary	20	20	19	17	17	m	m	m	m	m	m	
	Upper secondary and post-secondary non-tertiary	49	49	49	49	49	63	63	61	60	60	59	2.4
	Tertiary education	31	31	32	34	34	37	37	39	40	40	41	3.5
Korea	Below upper secondary	38	34	33	32	30	29	27	26	24	23	22	(4.5)
	Upper secondary and post-secondary non-tertiary	42	44	44	44	45	45	44	44	44	44	43	(0.1)
	Tertiary education	20	22	23	24	25	26	29	30	32	33	35	4.9
Luxembourg	Below upper secondary	m	m	44	44	47	38	41	37	34	34	34	
	Upper secondary and post-secondary non-tertiary	m	m	38	38	35	43	45	40	39	42	39	
	Tertiary education	m	m	18	18	18	19	14	24	27	24	27	
Mexico	Below upper secondary	72	72	73	71	70	70	70	69	68	68	67	(0.8)
	Upper secondary and post-secondary non-tertiary	16	16	15	16	16	16	16	17	18	18	18	1.6
	Tertiary education	12	12	12	13	13	14	14	15	14	14	15	2.1

Note: See Annex 3 for breaks in time series.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664024334566

Table A1.4. *(continued)*

Trends in educational attainment: 25-64 year-old population (1997-2007)

Percentage, by age group

			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2006/1998 Average annual growth rate
OECD countries	**Netherlands**	Below upper secondary	m	36	45	35	35	32	31	29	28	28	27	(3.1)
		Upper secondary and post-secondary non-tertiary	m	40	32	41	42	43	42	41	42	42	42	0.6
		Tertiary education	m	24	23	23	23	25	28	30	30	30	31	2.8
	New Zealand	Below upper secondary	39	38	37	36	35	34	33	32	31	30	28	(2.8)
		Upper secondary and post-secondary non-tertiary	34	34	34	35	36	35	35	32	30	31	31	(1.2)
		Tertiary education	27	28	29	29	29	31	32	36	39	39	41	4.2
	Norway	Below upper secondary	17	15	15	15	14	14	13	12	23	21	21	
		Upper secondary and post-secondary non-tertiary	57	57	57	57	55	55	56	56	45	46	45	
		Tertiary education	26	27	28	28	30	31	31	32	33	33	34	
	Poland	Below upper secondary	23	22	22	20	19	19	17	16	15	14	14	(5.2)
		Upper secondary and post-secondary non-tertiary	67	67	67	69	69	69	68	68	68	68	68	0.1
		Tertiary education	10	11	11	11	12	13	14	16	17	18	19	6.4
	Portugal	Below upper secondary	m	82	81	81	80	80	77	75	74	72	73	(1.6)
		Upper secondary and post-secondary non-tertiary	m	10	10	11	11	11	12	13	14	14	14	5.0
		Tertiary education	m	8	9	9	9	9	11	13	13	13	14	6.2
	Slovak Republic	Below upper secondary	21	20	18	16	15	14	13	15	14	13	13	(4.7)
		Upper secondary and post-secondary non-tertiary	68	70	72	73	74	75	75	72	72	72	73	0.4
		Tertiary education	10	10	10	10	11	11	12	12	14	14	14	4.1
	Spain	Below upper secondary	69	67	65	62	60	59	57	55	51	50	49	(3.6)
		Upper secondary and post-secondary non-tertiary	13	13	14	16	16	17	18	19	21	21	22	6.2
		Tertiary education	19	20	21	23	24	24	25	26	28	28	29	4.7
	Sweden	Below upper secondary	25	24	23	22	19	18	18	17	16	16	15	(4.9)
		Upper secondary and post-secondary non-tertiary	48	48	48	47	49	49	49	48	54	54	53	1.3
		Tertiary education	28	28	29	30	32	33	33	35	30	31	31	1.1
	Switzerland	Below upper secondary	19	16	16	16	16	15	15	15	15	15	15	(1.3)
		Upper secondary and post-secondary non-tertiary	59	61	61	60	60	59	60	58	57	56	56	(1.0)
		Tertiary education	22	22	23	24	24	25	25	27	28	29	30	3.3
	Turkey	Below upper secondary	79	78	78	77	76	75	74	74	73	72	71	(1.1)
		Upper secondary and post-secondary non-tertiary	13	14	14	15	15	16	17	17	18	18	18	2.8
		Tertiary education	8	7	8	8	8	9	10	9	10	10	11	4.2
	United Kingdom	Below upper secondary	41	40	38	37	37	36	35	34	33	32	32	(2.8)
		Upper secondary and post-secondary non-tertiary	37	36	37	37	37	37	37	37	37	38	37	0.4
		Tertiary education	23	24	25	26	26	27	28	29	30	31	32	3.3
	United States	Below upper secondary	14	14	13	13	12	13	12	12	12	12	12	(1.3)
		Upper secondary and post-secondary non-tertiary	52	52	51	51	50	49	49	49	49	48	48	(0.8)
		Tertiary education	34	35	36	36	37	38	38	39	39	39	40	1.6
	OECD average	***Below upper secondary***	***37***	***38***	***37***	***36***	***35***	***34***	***33***	***32***	***31***	***30***	***30***	***-3.2***
		Upper secondary and post-secondary non-tertiary	***43***	***42***	***42***	***42***	***43***	***43***	***43***	***43***	***43***	***43***	***43***	***1.0***
		Tertiary education	***20***	***20***	***21***	***21***	***22***	***23***	***24***	***25***	***26***	***26***	***27***	***3.4***
	EU19 average	***Below upper secondary***	***36***	***38***	***37***	***37***	***35***	***34***	***33***	***31***	***30***	***29***	***29***	***-3.5***
		Upper secondary and post-secondary non-tertiary	***46***	***44***	***44***	***44***	***45***	***46***	***46***	***46***	***46***	***47***	***47***	***1.4***
		Tertiary education	***18***	***19***	***19***	***19***	***20***	***21***	***21***	***23***	***24***	***24***	***24***	***3.6***
Partner countries	**Brazil**	Below upper secondary	m	m	m	m	m	m	m	m	m	m	63	
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	m	m	m	m	m	27	
		Tertiary education	m	m	m	m	m	m	m	m	m	m	10	
	Estonia	Below upper secondary	m	m	m	m	m	12	12	11	11	12	11	
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	57	58	57	56	55	56	
		Tertiary education	m	m	m	m	m	30	31	31	33	33	33	
	Israel	Below upper secondary	m	m	m	m	m	20	18	21	21	20	20	
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	38	39	34	33	34	37	
		Tertiary education	m	m	m	m	m	42	43	45	46	46	44	

Note: See Annex 3 for breaks in time series.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664024334566

Table A1.5.

Annual average growth in 25-64 year-old population between 1998 and 2006

Percentage, by level of education

OECD countries	Below upper secondary	Upper secondary and post-secondary non-tertiary	Tertiary education	All levels of education
	(1)	(2)	(3)	(4)
Australia	-2.3	2.3	4.5	1.1
Austria	-2.8	0.9	3.7	0.5
Belgium	-2.8	1.9	3.4	0.5
Canada	-3.6	0.7	4.0	1.3
Czech Republic	-3.9	1.5	4.5	1.2
Denmark	-1.6	-1.2	4.3	0.3
Finland	-4.9	2.0	2.2	0.3
France	-1.7	1.0	3.7	0.6
Germany	0.4	-0.3	0.5	-0.5
Greece	-2.5	3.8	4.5	0.9
Hungary	-5.5	3.1	4.6	0.8
Iceland	-4.2	-2.1	2.5	2.1
Ireland	-1.9	4.7	7.7	3.0
Italy	-2.0	2.7	5.7	0.5
Japan	0.0	2.2	3.4	0.0
Korea	-3.1	1.4	6.4	1.4
Mexico	1.5	4.0	4.4	2.3
Netherlands	-2.9	0.9	3.1	0.4
New Zealand	-2.0	-0.4	5.1	1.2
Poland	1.1	-2.1	7.1	0.6
Portugal	-0.4	6.3	7.5	1.2
Slovak Republic	-3.2	2.0	5.7	1.6
Spain	-0.8	9.2	7.7	2.9
Sweden	-4.4	1.9	1.6	0.5
Switzerland	-0.6	-0.4	4.1	0.7
Turkey	2.3	6.3	7.8	3.4
United Kingdom	-2.3	0.9	3.7	0.5
United States	*0.1*	*0.6*	*3.0*	*1.4*
OECD Average	*-1.9*	*1.9*	*4.5*	*1.1*

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664024334566

Table A1.6.

Proportion of age cohorts in skilled jobs (ISCO 1-3) by educational attainment (2006, 1998)

Percentage of tertiary educated (ISCED 5/6) and below tertiary educated (ISCED 0-4) individuals in skilled jobs (ISCO 1-3)

			Percentage of cohorts with tertiary education (ISCED 5/6) employed in skilled jobs					Change between 1998 and 2006 (percentage points)	Percentage of cohorts with below tertiary education (ISCED 0-4) employed in skilled jobs					Difference between (percentage points)
			25-34	35-44	45-54	55-64	25-64	25-34	25-34	35-44	45-54	55-64	25-64	25-34 and 45-54
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries	**Australia**	2006	77	81	83	83	80		30	34	36	35	33	-6
		1998	m	m	m	m	m		m	m	m	m	m	
	Austria	2006	80	75	76	81	77	4	33	31	29	30	31	4
		1998	76	81	80	82	79		24	24	22	28	24	2
	Belgium	2006	75	76	82	85	78	2	22	25	27	32	26	-5
		1998	74	80	85	89	79		19	23	26	34	24	-7
	Canada	2006	64	65	66	69	66	1	23	26	26	26	25	-3
		1998	63	67	71	69	66		22	25	26	25	25	-4
	Czech Republic	2006	93	95	95	95	94	0	29	33	29	32	31	-1
		1998	94	95	95	95	95		27	28	29	31	28	-2
	Denmark	2006	81	86	88	89	86	1	19	24	25	25	23	-5
		1998	79	86	88	88	85		16	20	21	19	19	-5
	Finland	2006	81	81	82	86	82	9	29	25	23	25	25	6
		1998	73	79	80	89	78		27	28	27	25	27	0
	France	2006	74	83	88	91	81	-5	19	23	27	31	24	-8
		1998	79	88	91	94	85		18	22	29	30	24	-11
	Germany[1]	2006	79	78	78	78	78	5	31	30	30	31	30	1
		1998	74	75	78	75	76		26	27	28	28	27	-2
	Hungary	2006	87	91	92	92	90	-4	20	20	20	23	20	0
		1998	91	92	91	92	92		20	20	21	22	20	-1
	Iceland	2006	85	87	94	88	88		25	30	30	30	29	-5
		1998	m	m	m	m	m		m	m	m	m	m	a
	Ireland	2006	65	74	80	80	72		19	25	27	32	25	-9
		1998	m	m	m	m	m		m	m	m	m	m	a
	Italy[3]	2006	79	86	92	96	86	-1	28	32	34	40	33	-6
		1998	80	88	92	94	88		20	23	23	21	22	-3
	Luxembourg[1]	2006	96	96	98	99	97	0	25	27	27	33	27	-2
		1998	96	96	97	97	97		25	29	28	34	28	-3
	Netherlands[2]	2006	85	89	90	91	88	-2	33	36	37	34	35	-4
		1998	87	91	92	95	90		36	40	40	44	39	-4
	Norway	2006	79	88	90	91	86	-1	20	26	26	26	25	-6
		1998	80	88	90	92	86		19	28	28	24	25	-9
	Poland	2006	80	92	92	91	87	-11	16	18	21	22	19	-5
		1998	91	94	94	93	93		19	21	23	15	21	-4
	Portugal	2006	83	90	93	95	88	-8	14	16	19	18	17	-5
		1998	91	94	94	96	93		12	17	19	16	16	-7
	Slovak Republic	2006	89	92	93	94	92	-1	25	26	24	25	25	0
		1998	90	95	96	95	94		22	25	28	26	25	-6
	Spain	2006	59	65	75	81	66	0	10	16	18	22	16	-7
		1998	59	74	82	82	69		14	19	20	20	18	-6
	Sweden[1]	2006	78	87	89	91	86	-13	20	29	28	30	27	-8
		1998	92	94	95	96	94		31	34	38	34	34	-7
	Switzerland	2006	82	80	79	81	80	5	34	32	33	32	33	0
		1998	77	78	82	80	79		33	32	32	30	32	0
	Turkey	2006	73	79	85	83	77		16	18	17	12	16	-1
		1998	m	m	m	m	m		m	m	m	m	m	
	United Kingdom[3]	2006	76	81	82	80	80	-3	28	30	28	26	28	-1
		1998	79	85	87	83	83		27	29	28	25	27	-1
	United States[4]	2006	63	65	66	67	65	0	15	18	19	20	18	-4
		1998	63	66	67	68	66		15	18	19	19	18	-4
	OECD average	***2006***	***79***	***82***	***85***	***86***	***82***	***-2***	***23***	***26***	***26***	***28***	***26***	***-3***
		1998	***80***	***85***	***87***	***88***	***84***		***23***	***25***	***27***	***26***	***25***	***-4***
Partner countries	**Israel**	2006	73	71	69	67	70	-1	26	24	24	23	25	2
		1998	73	69	68	68	70		27	25	25	24	26	2
	Slovenia	2006	90	93	93	94	92	0	23	25	23	21	23	-1
		1998	90	93	93	94	92		23	25	23	21	23	-1

Note: The table only refers to the employed population.
1. 1999 instead of 1998.
2. 2000 instead of 1998.
3. Italy: change in survey methodology between 1998 and 2006 affects comparability. The United Kingdom: change in national occupation coding frame in 2000 affects comparability for ISCO.
4. ISCO groupings 3 and 9 in 2006 are not separated and thus distributed among remaining classification.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664024334566

INDICATOR A2

HOW MANY STUDENTS FINISH SECONDARY EDUCATION AND ACCESS TERTIARY EDUCATION?

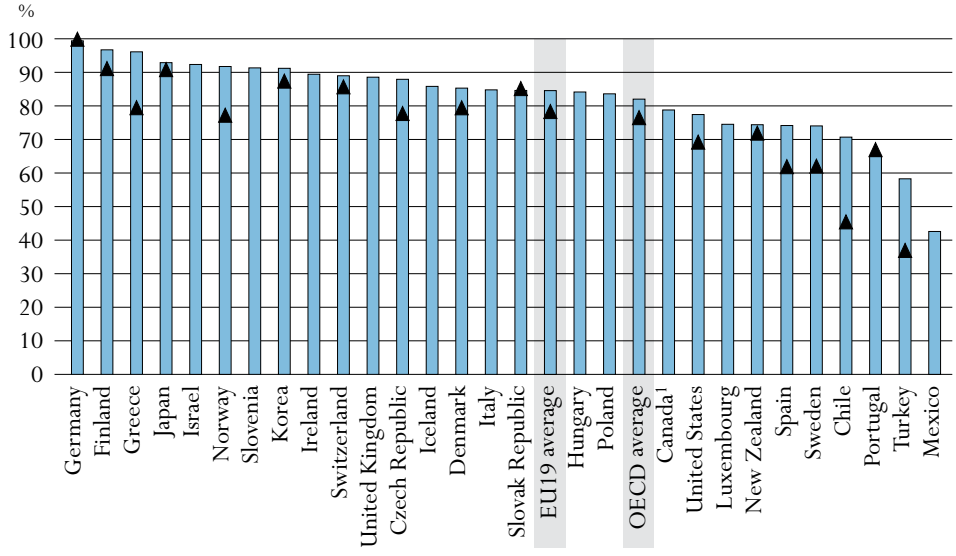
This indicator shows the current upper secondary graduate output of education systems, *i.e.* the percentage of the typical population of upper secondary school age that follows and successfully completes upper secondary programmes. It also shows the percentage of the youth cohort that will enter different types of tertiary education during their lifetime and the impact of international/foreign students.

Key results

Chart A2.1. Upper secondary graduation rates (1995, 2007)

The chart shows the estimated percentage of an age cohort that will complete upper secondary education for the first time in 1995 and in 2007 (based on current patterns of graduation); it gives an indication of how many young adults complete upper secondary education compared to a decade earlier.

In the last twelve years, the proportion of students graduating from upper secondary programmes has grown by seven percentage points on average in OECD countries with comparable data. In 22 of 25 OECD countries and all partner countries with comparable data, upper secondary graduation rates exceed 70%. In Finland, Germany, Greece, Ireland, Japan, Korea and Norway and in the partner countries Israel and Slovenia, graduation rates equal or exceed 90%.



Note: 1995 graduation rates are calculated on a gross basis whereas 2007 are calculated as net graduation rates (for countries with available data).

1. Year of reference 2006.

Countries are ranked in descending order of the upper secondary graduation rates in 2007.

Source: OECD. Table A2.2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664035755120

Other highlights of this indicator

- Females are now more likely to complete upper secondary education than males in almost all OECD and partner countries, a reversal of the historical pattern. Today, graduation rates for females are below those for males only in Switzerland and Turkey. The gender gap is greater in Denmark, Finland, Hungary, Iceland, Ireland, New Zealand, Norway, Portugal and Spain and in the partner country Slovenia, where graduation rates for females exceed those for males by 10 percentage points or more.

- In most countries, upper secondary education is designed to prepare students to enter university-level education (tertiary-type A). In Austria, Germany and Switzerland and the partner country Slovenia, however, students are more likely to graduate from upper secondary programmes that lead to vocationally oriented tertiary education (tertiary-type B), where courses are typically shorter and focus on the development of practical, technical or occupational skills.

- Entry rates in tertiary-type A education increased by nearly 20 percentage points on average in OECD countries between 1995 and 2007. In 2007, in Australia, Finland, Iceland, New Zealand, Norway, Poland, the Slovak Republic and Sweden, and the partner country the Russian Federation, it is estimated that 65% and more of young adults will enter tertiary-type A programmes.

- The proportion of students who enter tertiary-type B programmes is generally smaller than for tertiary-type A programmes. In OECD countries for which data are available, 15% of young adults, on average, will enter tertiary-type B programmes, 56% will enter tertiary-type A programmes and 2.8% will enter advanced research programmes. In Belgium, and to a lesser extent in the partner countries Chile and Estonia, wide access to tertiary-type B programmes counterbalances comparatively low rates of entry into tertiary-type A programmes. New Zealand stands out as a country with entry rates at both levels that are among the highest in the OECD countries.

- High proportions of international students influence entry rate levels. In Australia and New Zealand, the impact of international students is so huge that their entry rate dropped significantly when international students were excluded, causing them to lose their top two ranking positions.

Policy context

Rising skill demands in OECD countries have made qualifications at the upper secondary level the minimum credential for successful labour market entry. Upper secondary education serves as the foundation for advanced learning and training opportunities, as well as preparation for direct entry into the labour market. Although many countries allow students to leave the education system at the end of the lower secondary level, those who leave without an upper secondary qualification tend to face severe difficulties when entering the labour market in OECD countries (see Indicators A6 and A7).

A high level for upper secondary graduation rates does not guarantee that an education system has adequately equipped its graduates with the basic skills and knowledge necessary to enter the labour market, because they do not capture the quality of educational outcomes. However, graduation rates do give a certain indication of the extent to which education systems succeed in preparing students to meet the minimum requirements of the labour market.

Entry rate is an estimated probability that a school leaver will enter tertiary education during his/her lifetime. So, entry rate provides an indication of the accessibility of tertiary education as well as the perceived value of attending tertiary programmes. It provides a partial indication of the degree to which a population is acquiring the high-level skills and knowledge valued by the labour market in today's knowledge society. High tertiary entry and participation rates help to ensure the development and maintenance of a highly educated population and labour force.

As students' awareness of the economic and social benefits of tertiary education has increased, so have rates of entry into both tertiary-type A and tertiary-type B programmes. Continued growth in participation, accompanied by a widening diversity in the backgrounds and interests of those aspiring to tertiary studies, will demand new kinds of provision. Tertiary institutions will be challenged not only to meet growing demand through expansion of places offered, but also to adapt programmes, teaching and learning to match the diverse needs of the new generation of students. Moreover, the relative popularity of the various fields of study affects the demand for courses and teaching staff.

Evidence and explanations

Graduation from upper secondary programmes

Graduation from upper secondary education is becoming the norm in most OECD countries. Since 1995, the upper secondary graduation rate has increased by 7 percentage points on average among OECD countries with comparable data. The highest growth occurred in the Czech Republic, Greece, Norway, Spain, Sweden and Turkey and in the partner country Chile, while levels in Germany, Japan, Korea, New Zealand, Portugal, the Slovak Republic, and Switzerland have been stable over the last decade. In Mexico and Turkey, the proportion of students graduating at the upper secondary level has grown rapidly since 2000, narrowing the gap between these and other OECD countries (Table A2.2).

In 22 of 25 OECD countries and all partner countries with comparable data, first-time upper secondary graduation rates exceed 70%. In Finland, Germany, Greece, Ireland, Japan, Korea and Norway and in the partner countries Israel and Slovenia, graduation rates equal or exceed 90% (Chart A2.1). The balance of educational attainment between males and females in the adult

population differs in most countries. In the past, females did not have sufficient opportunities and/or incentives to reach the same level of education as males. They have generally been overrepresented among those not continuing to upper secondary education and consequently were underrepresented at higher levels of education. However, these gender differences are most evident in older age groups and have been significantly reduced or reversed among younger age groups (see Indicator A1).

Today, upper secondary graduation rates for females exceed those for males in 23 of 25 OECD countries and in all the partner countries for which total upper secondary graduation rates can be compared by gender. The exceptions are Switzerland and Turkey, where graduation rates are higher for males. The gap is greatest in Denmark, Finland, Hungary, Iceland, Ireland, New Zealand, Norway, Portugal and Spain and in the partner country Slovenia, where female graduation rates exceed those of males by 10 percentage points or more (Table A2.1).

Although graduation from upper secondary education is becoming the norm, the upper secondary curriculum can vary depending on the type of education or occupation for which it is designed. Most upper secondary programmes in OECD and partner countries are designed primarily to prepare students for tertiary studies; their orientation may be general, pre-vocational or vocational (see Indicator C1).

In 2007, the female graduation rate from general programmes was greater than the corresponding value for males for almost all OECD and partner countries with comparable data. The OECD average graduation rate from general programmes was 55% for females and 41% for males. The higher proportion of females is especially noteworthy in Austria, the Czech Republic, Iceland, Italy, Norway and the Slovak Republic and in the partner countries Estonia and Slovenia, where they outnumber males by at least three to two. Only in Korea and Turkey do the proportions for both sexes approach equality. Females are also, more often than in the past, graduates of vocational programmes. On average among OECD countries, 43% of 2007 pre-vocational and vocational programme graduates were female. This pattern can affect the entry rates in tertiary-type B programmes in the following years (Table A2.1).

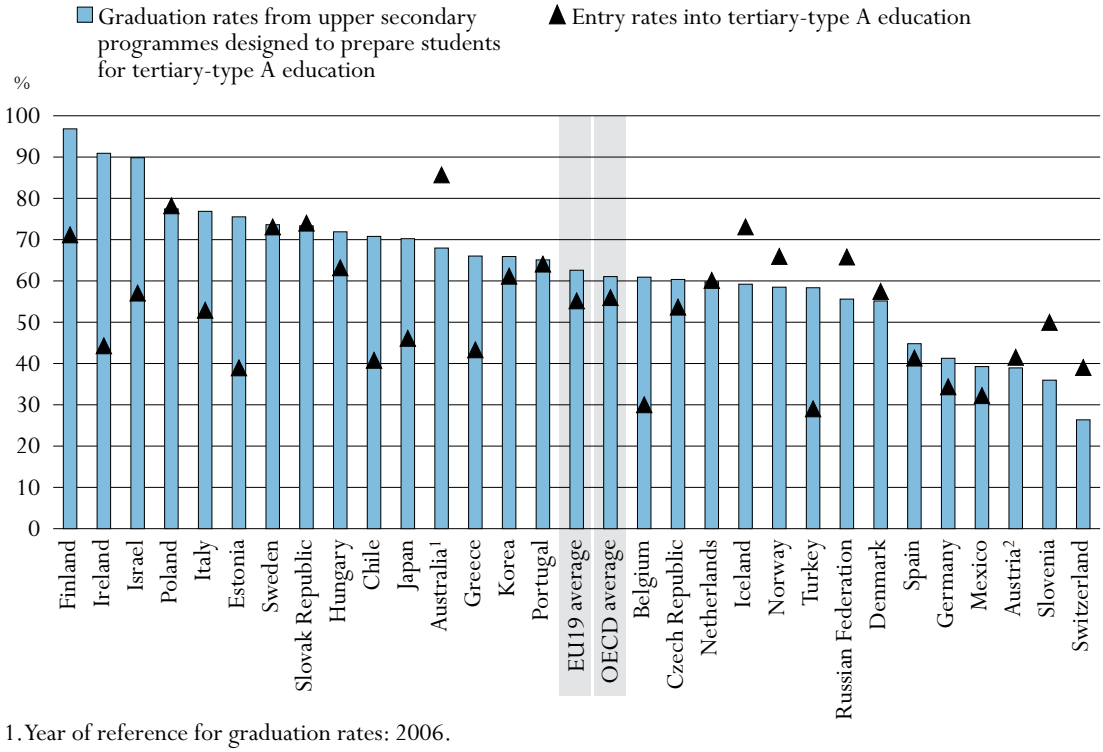
Transitions following upper secondary education

The vast majority of students who graduate from upper secondary education graduate from programmes designed to provide access to further tertiary education (ISCED 3A and 3B). Programmes to facilitate direct entry into tertiary-type A education are preferred by students in all countries except Austria, Germany and Switzerland and the partner country Slovenia, where both female and male students are more likely to graduate from upper secondary programmes leading to tertiary-type B programmes. The graduation rate for ISCED 3C (long programmes) is 16%, on average among OECD countries (Table A2.1).

It is interesting to compare the proportion of students who graduate from programmes designed as preparation for entry into tertiary-type A programmes with the proportion who actually enter these programmes. Chart A2.2 shows significant variation in patterns among countries. For instance, in Belgium, Finland, Greece, Ireland, Italy, Japan and Turkey, and in the partner countries Chile, Estonia and Israel, the difference between graduation rates from upper secondary programmes designed for tertiary-type A programmes and the eventual entry rate into such programmes is relatively

large (more than 20 percentage points). This suggests that many students who achieve qualifications designed for university level entrance do not in fact take up university studies; however, at least in Belgium, Japan and the partner countries Estonia and Israel, such upper secondary programmes also give access to tertiary-type B programmes. In addition, Japan has "Junior colleges" that offer programmes that are similar to tertiary-type A programmes, but are classified as tertiary-type B because of their shorter duration of study. In Israel, the difference may be explained by the wide variation in the age of entry to university, which is due in part to the two to three years of military service students undertake before entering higher education. In Finland, upper secondary level includes vocational education where many graduates enter the labour market straight after the completion of their studies and do not continue their studies at tertiary level. There is also a *numerus clausus* system in Finnish higher education, which means that the number of entry places to higher education is restricted. In addition to this, graduates from upper secondary general education take a two to three year break before entering into university or polytechnic education. In Ireland, the majority of students at second level take the Leaving Certificate examination (ISCED 3A). Although this is an ISCED 3A course which is designed for entry to third level, not all of the students who sit for this examination do so in order to advance to third level (college/university). Until recently school leavers in Ireland have had alternative options, such as participation in a strong labour market, which may also have affected this difference.

Chart A2.2. Access to tertiary-type A education for upper secondary graduates (2007)



1. Year of reference for graduation rates: 2006.
2. Includes ISCED 4A programmes ("Berufsbildende Höhere Schulen").

Countries are ranked in descending order of graduation rates from upper secondary programmes designed to prepare students for tertiary-type A education in 2007.

Source: OECD. Table A2.1 and Table A2.4. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664035755120

In contrast, in Australia, Iceland, Switzerland and in the partner countries the Russian Federation and Slovenia, the upper secondary graduation rate is markedly lower than tertiary-type A entry rates. Australia, Iceland and Switzerland attract high proportions of international/foreign students; their tertiary-type A entry rates are inflated by students who have completed their upper secondary education in their own country but have decided to pursue their education abroad (see Indicator C2).

As mentioned previously, in Switzerland and in the partner countries Slovenia and the Russian Federation, although many students are more likely to graduate from upper secondary programmes leading to tertiary-type B programmes, some of them may later choose to pursue university studies instead, thanks to pathways between the two types of tertiary programmes.

Graduation from post-secondary non-tertiary programmes

Post-secondary non-tertiary programmes of various kinds are offered in 26 OECD countries and 4 partner countries. These programmes straddle upper secondary and post-secondary education but may be considered as either upper secondary or post-secondary programmes in a particular national context. Although the content of these programmes may not be significantly more advanced than upper secondary programmes, post-secondary non-tertiary programmes serve to broaden the knowledge of participants who have already gained an upper secondary qualification. Students in these programmes tend to be older than those enrolled at the upper secondary level.

Typical examples of such programmes are trade and vocational certificates, nursery teacher training in Austria and Switzerland, or vocational training in the dual system for holders of general upper secondary qualifications in Germany. In most countries, post-secondary non-tertiary programmes are vocationally oriented. In the Czech Republic and New Zealand, nearly 20% or more of a typical age cohort complete a post-secondary non-tertiary programme (Table A2.3).

In 11 OECD countries and 1 partner country, all post-secondary non-tertiary students graduate from ISCED 4C programmes, which are designed primarily to prepare graduates for direct entry into the labour market. Differences in the proportion of males and females participating in these programmes are not apparent at the level of the OECD average, but at the country level they can be large. Among the countries in which the graduation rate exceeds 9% at this level of education, in Australia and Poland, 40% more females have completed an ISCED 4C programme than males, while the opposite is true in Ireland, where the proportion of female graduates is nearly seven times lower (Table A2.3).

Apprenticeships designed for students who have already graduated from an upper secondary programme are also included among post-secondary non-tertiary programmes. In Austria, the Czech Republic, Denmark, Germany, the Slovak Republic, Switzerland and in the partner countries Estonia and Slovenia, 50% or more of post-secondary non-tertiary graduates have completed programmes designed to provide direct access to either tertiary-type A or B education (Table A2.3).

Overall access to tertiary education

Graduates from upper secondary programmes and those in the workforce who want to upgrade their skills can choose from a wide range of tertiary programmes. The higher the upper secondary graduation rate, the higher the expected entry rate into tertiary education. This indicator examines

students' orientation towards tertiary education and helps to understand the choices made by students at the end of upper secondary education. Furthermore, this orientation is extremely important and will affect not only dropout rates (see Indicator A3) but also unemployment rates (see Indicator A6) if the programmes proposed are not adjusted to labour market needs.

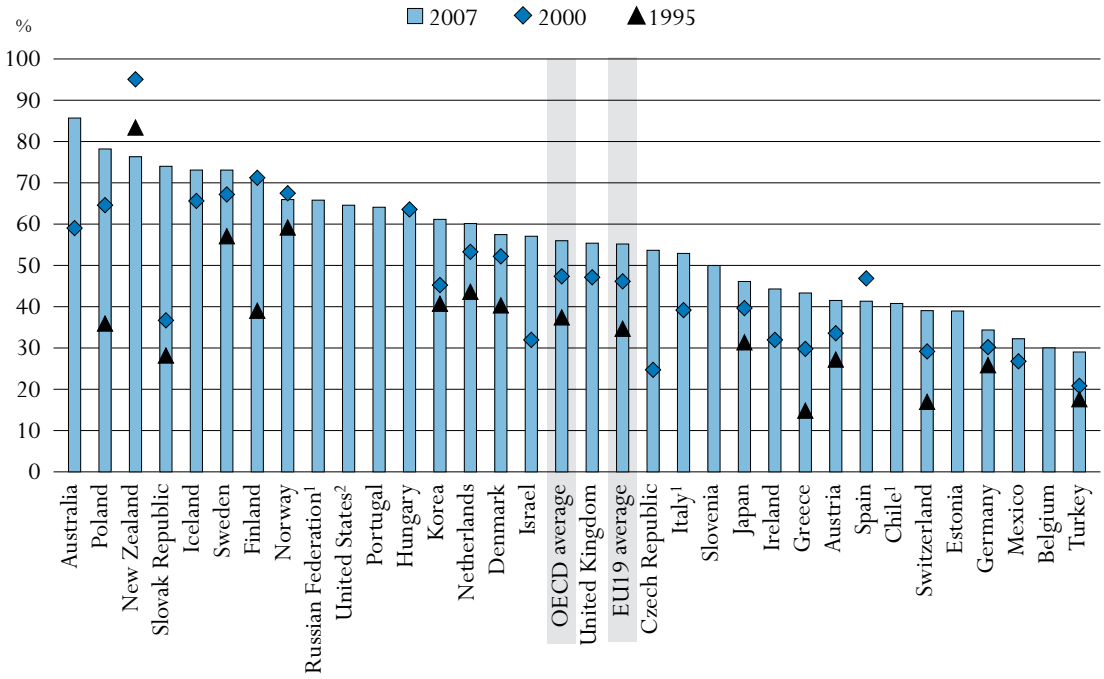
This indicator distinguishes among different categories of tertiary qualifications: programmes at tertiary-type B level (ISCED 5B); programmes at tertiary-type A level (ISCED 5A); and advanced research programmes at the doctorate level (ISCED 6). Tertiary-type A programmes are largely theory-based and designed to provide qualifications for entry into advanced research programmes and highly skilled professions. Tertiary-type B programmes are classified at the same level of competence as tertiary-type A programmes, but are more occupationally oriented and provide direct access to the labour market. They tend to be of shorter duration than tertiary-type A programmes (typically two to three years) and are generally not designed to lead to university degrees. The institutional location of programmes can give a relatively clear idea of their nature (*e.g.* university or non-university institution of higher education), but these distinctions have become blurred and are therefore not applied in the OECD indicators.

It is estimated that 56% of young adults in OECD countries will enter tertiary-type A programmes during their lifetime, assuming that current patterns of entry continue. In Australia, Finland, Iceland, New Zealand, Norway, Poland, the Slovak Republic and Sweden, as well as in the partner country the Russian Federation, 65% or more of young adults enter tertiary-type A programmes. The United States has an entry rate of 65%, but both type A and type B programmes are included in the figures for tertiary-type A. Although Turkey has had a large increase in the number of students entering tertiary-type A programmes since 1995, its entry rate is only 29% and it remains, with Belgium, Germany and Mexico, at the bottom of the scale (Chart A2.3).

The proportion of students entering tertiary-type B programmes is generally smaller, mainly because these programmes are less developed in most OECD countries. In OECD countries for which data are available, 15% of young adults, on average, enter tertiary-type B programmes. The OECD country average differs somewhat from the EU19 country average (12%). The figures range from 3% or less in Iceland, Italy, Mexico, the Netherlands, Norway, Poland, Portugal and the Slovak Republic to 30% or more in Belgium and Japan and in the partner countries Estonia, the Russian Federation and Slovenia and to more than 45% in Korea and New Zealand and in the partner country Chile. Although the share of tertiary-type B programmes in the Netherlands is currently very small, it is expected to increase with the introduction of a new programme of "associate degrees". Finland no longer has tertiary-type B programmes in its education system (Chart A2.4).

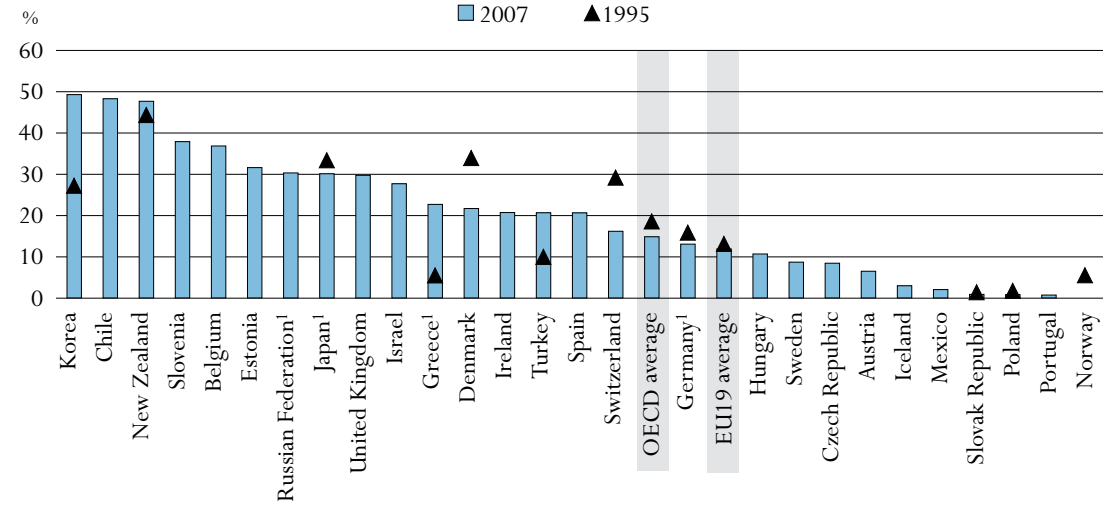
In Belgium and to a lesser extent in the partner countries Chile and Estonia, broad access to tertiary-type B programmes counterbalances comparatively low entry rates into tertiary-type A programmes. Iceland, Norway, Poland, Portugal, the Slovak Republic and Sweden have entry rates well above the OECD average for tertiary-type A programmes and comparatively very low rates for tertiary-type B programmes. Other OECD countries, most notably Korea and the United Kingdom and the partner country Slovenia have entry rates around the OECD average for tertiary-type A programmes and comparatively high rates of entry to tertiary-type B programmes. New Zealand stands out, with entry rates at both levels that are among the highest in OECD countries. However, its entry rates are, in part, inflated by a higher proportion of international students (Box A2.1).

Chart A2.3. Entry rates into tertiary-type A education (1995, 2000 and 2007)



1. The entry rates for tertiary-type A programmes are calculated on a gross basis.
2. The entry rates for tertiary-type A programmes include the entry rates for tertiary-type B programmes.
Countries are ranked in descending order of entry rates for tertiary-type A education in 2007.
Source: OECD. Table A2.5. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664035755120

Chart A2.4. Entry rates into tertiary-type B education (1995, 2007)



1. The entry rates for tertiary-type B programmes are calculated on a gross basis.
Countries are ranked in descending order of entry rates for tertiary-type B education in 2007.
Source: OECD. Table A2.5. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664035755120

On average, in all OECD countries with comparable data, 9 percentage points more of today's young adults enter tertiary-type A programmes than in 2000 and 19 percentage points more than in 1995. Entry rates in tertiary-type A education increased by more than 15 percentage points between 2000 and 2007 in Australia, the Czech Republic, Korea and the Slovak Republic and in the partner country Israel. New Zealand, Norway and Spain are the only OECD countries that show a decrease in entry to tertiary-type A programmes, although in Spain, the decrease is counterbalanced by a significant increase in entry rates into tertiary-type B programmes between 2000 and 2007. In New Zealand, the rise and fall in entry rates over the 2000 to 2007 period mirrored the rise and fall in the number of international students over the same period.

Among OECD countries, overall net entry rates into tertiary-type B programmes between 1995 and 2007 have slightly decreased, except in Greece, Korea, New Zealand and Turkey, where they have increased, and in Poland and the Slovak Republic, where they have remained stable. The reclassification of tertiary-type B to tertiary-type A programmes in Austria and Denmark after 2000 partly explains the changes observed in these countries between 1995 and 2007 (Chart A2.3 and Chart A2.4).

More than 2.8% of today's young adults in the 20 OECD countries with comparable data will enter advanced research programmes during their lifetime. The figures range from less than 1% in Mexico and Turkey and in the partner countries Chile and Slovenia to 4% or more in Austria, Greece, Portugal and Switzerland (Table A2.4).

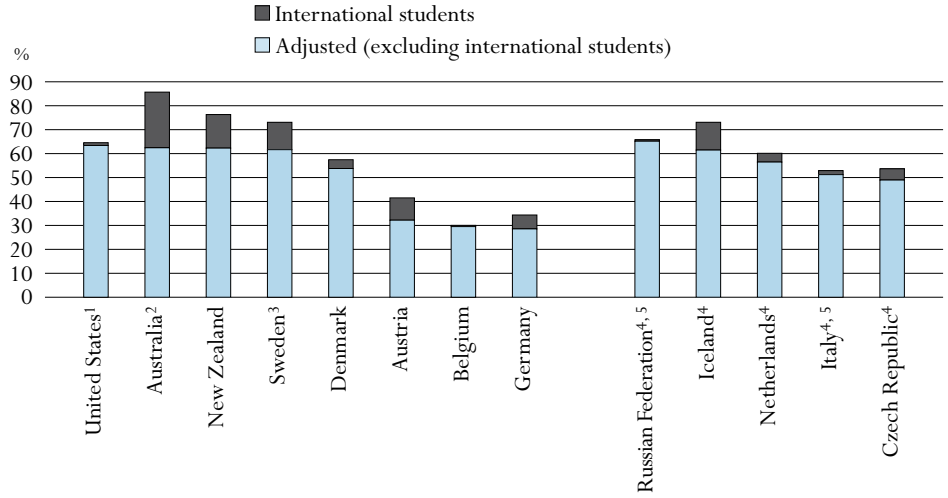
Rates of entry into tertiary education should also be considered in light of participation in post-secondary non-tertiary programmes, an important alternative to tertiary education in some OECD countries.

Box A2.1. The impact of international students on entry rates at tertiary-type A level

By definition all international students enrolling for the first time in a country are counted as new entrants, regardless of their previous education in other countries. The reason is that countries are less likely to know about the previous education of international students. Entry rates estimate the proportion of the population that will enter tertiary-type A programmes during their lifetime. To highlight the impact of international students on entry rates at the tertiary-type A level, both unadjusted and adjusted entry rates (*i.e.* the entry rate when international students are excluded) are presented in Chart A2.5.

Among countries for which data on international students are available, the impact of international students is significant in Australia, Austria, Germany and New Zealand. For Australia and New Zealand, with adjustments of 23 and 14 percentage points respectively, the impact is so great that their entry rates slip from the top 2 ranking positions to fall behind the United States. Sweden's entry rate, with an adjustment of 11 percentage points, is also affected by the impact of international students, but this effect may be slightly overestimated as Sweden included exchange students in the count of international students. Among countries which report data on foreign students, a large adjustment (12 percentage points) is also seen in Iceland (Table A2.4).

Chart A2.5. Entry rates into tertiary-type A education level: impact of international students (2007)



1. The entry rate at tertiary-type A level includes the entry rate at tertiary-type B level.
2. Year of reference 2006.
3. International students include exchange students.
4. The entry rate is calculated for foreign students (defined on the basis of their country of citizenship). These data are not comparable with data on international entry rate and are therefore presented separately.
5. The entry rates calculated on a gross basis.

Countries are ranked in descending order of adjusted entry rates for tertiary-type A education in 2007.

Source: OECD. Table A2.4. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664035755120

The greatest impact of international students on indicators such as the entry rate and graduation rate (see Indicator A3) is naturally observed amongst countries with the largest proportion of international students. Since these indicators generally have a domestic focus, they can be misinterpreted for countries with high proportions of international students (*e.g.* Australia and New Zealand). Therefore, to improve the comparability of these indicators amongst countries the impact of international students should be removed whenever possible. Unfortunately it is still difficult for many countries to collect reliable information on international students, so adjustments to indicators for those students are not always possible.

Pathways between tertiary-type A and tertiary-type B programmes

In some countries, tertiary-type A and B programmes are provided by different types of institutions but this is changing. It is increasingly common for universities or other institutions to offer programmes of both types; furthermore, the two levels are gradually becoming more similar in terms of curriculum, orientation and learning outcomes.

Graduates from tertiary-type B programmes often have the opportunity to gain admission to tertiary-type A programmes, either in the second or third year of the programme or even to a master's programme. This path is often subject to conditions (special examination, personal or professional past achievements, completion of a "bridging" programme, etc.) depending on the country or programme. Conversely, students who leave tertiary-type A education without having graduated can in some cases be successfully re-oriented towards tertiary-type B programmes.

Countries with high entry rates into tertiary-level education may also be countries that have pathways between the two types of programmes.

Age of new entrants into tertiary education

The age structure of new entrants into tertiary education varies among OECD countries. The typical graduation age for upper secondary education may be different and/or upper secondary graduates may have entered the labour market before enrolling in tertiary education. People entering tertiary-type B programmes may also enter tertiary-type A programmes later in their lives. Adding together tertiary-type A and B entry rates to obtain overall tertiary-level entry rates would therefore result in overcounting.

Traditionally, students enter tertiary-type A programmes immediately after having completed upper secondary education, and this remains true in many OECD countries. For example, in Belgium, Ireland, Italy, Japan, Korea, Mexico, the Netherlands and Poland and in the partner country Slovenia, 80% of all first-time entrants into tertiary-type A programmes are under 23 years of age (Table A2.4).

In other OECD and partner countries, the transition between upper secondary and tertiary education may happen at a later age, due to time spent in the labour force for example. In these countries, first-time entrants into tertiary-type A programmes are typically older and represent a much wider age range at entry. In Australia, Denmark, Iceland, New Zealand, Norway, Portugal, the Slovak Republic, Sweden, Switzerland and the United States and in the partner country Israel, 20% of first-time entrants are aged nearly 27 or older (Table A2.4). The proportion of older first-time entrants into tertiary-type A programmes may reflect, among other factors, the flexibility of these programmes and their suitability to students outside the typical age cohort. It may also reflect a view of the value of work experience for higher education studies, which is characteristic of the Nordic countries and common in Australia, the Czech Republic, Hungary, New Zealand, Switzerland and the United States, where a sizeable proportion of new entrants is much older than the typical age of entry. It may also reflect some countries' mandatory military service, which postpones entry into tertiary education. For example, the partner country Israel - where more than half of the students enter the tertiary-type A level for the first time at the age of 22 or older - has mandatory military service for males aged 18 to 21 and for females aged 18 to 20.

Definitions and methodologies

Data refer to the academic year 2006/07 and are based on the UOE data collection on education statistics administered by the OECD in 2008 (for details see Annex 3 at *www.oecd.org/edu/eag2009*).

Upper secondary or post-secondary non-tertiary graduation rates (Table A2.1, Table A2.2 and Table A2.3) are calculated as net graduation rates (*i.e.* as the sum of age-specific graduation rates) for the years 2005, 2006 and 2007. Net graduation rates represent the estimated percentage of the age cohort that will complete upper secondary education or post-secondary non-tertiary education (based on current patterns of graduation). Gross graduation rates are presented for the years 1995 and 2000-04. Similarly, gross graduation rates are presented in the coming years for countries that are unable to provide such detailed data. In order to calculate gross graduation rates, countries identify the age at which graduation typically occurs. Information on the methods used to calculate graduation rates (gross versus net rates) are presented for each level of education in Annex 1. The number of graduates, regardless of their age, is divided by the population at the typical graduation age. The graduation rates take into account students

graduating from upper secondary education at the typical (modal) graduation ages, as well as older students (*e.g.* those in "second chance" programmes) or younger students.

The count of first-time graduates (Columns 1-3 in Table A2.1 or Table A2.3) is calculated by netting out students who graduated from another upper secondary programme in a previous year (or another post-secondary non-tertiary programme). As for the others columns of the tables, the net rate is calculated when data are available.

Graduates of ISCED 3A, 3B and 3C (or 4A, 4B and 4C) programmes are not considered as first-time counts. Therefore, gross graduation rates cannot be added, as some individuals graduate from more than one upper secondary programme (or post-secondary non-tertiary) and would be counted twice. The same applies for graduation rates according to programme orientation, *i.e.* general or vocational. Moreover, the typical graduation ages are not necessarily the same for the different programme types. Pre-vocational and vocational programmes include both school-based programmes and combined school- and work-based programmes that are recognised as part of the education system. Entirely work-based education and training that is not overseen by a formal education authority is not taken into account.

In Table A2.2 (trends in graduation rates at upper secondary level) or Table A2.5 (trends in entry rates), data for the years 1995, 2000, 2001, 2002, 2003 and 2004 are based on a special survey carried out in OECD countries and four of the six partner countries in January 2007.

Table A2.4 and Table A2.5 show the sum of net entry rates for all ages. The net entry rate for a specific age is obtained by dividing the number of first-time entrants of that age to each type of tertiary education by the total population in the corresponding age group. The sum of net entry rates is calculated by adding the rates for each year of age. The result represents an estimate of the probability that a young person will enter tertiary education in his/her lifetime assuming current age-specific entry rates continue. Table A2.4 also shows the 20th, 50th and 80th percentiles of the age distribution of first-time entrants, *i.e.* the age below which 20%, 50% and 80% of first-time entrants are found. Finally, data on the impact of international students on tertiary entry rates are based on a special survey carried out by the OECD in December 2008.

New (first-time) entrants are students who enrol at the relevant level of education for the first time. International/foreign students enrolling for the first time in a post-graduate programme are considered first-time entrants.

Not all OECD countries can distinguish between students entering a tertiary programme for the first time and those transferring between different levels of tertiary education or repeating or re-entering a level after an absence. Thus first-time entry rates for each level of tertiary education cannot be added to form a total tertiary-level entrance rate because it would result in counting entrants twice.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/664035755120

- ***Table A2.6. Percentage of new entrants in tertiary education and proportion of females, by field of education (2007)***

A2

Table A2.1.

Upper secondary graduation rates (2007)

Sum of graduation rates for single year of age, by programme destination, programme orientation and gender

		Total (first-time graduates)			ISCED 3A (designed to prepare for direct entry to tertiary-type A education)		ISCED 3B (designed to prepare for direct entry to tertiary-type B education)		ISCED 3C (long) similar to duration of typical 3A or 3B programmes		ISCED 3C (short) shorter than duration of typical 3A or 3B programmes		General programmes		Pre-vocational/ vocational programmes	
		M + F	Males	Females	M + F	Females	M + F	Females	M + F	Females	M + F	Females	M + F	Females	M + F	Females
		(1)	(2)	(3)	(4)	(6)	(7)	(9)	(10)	(12)	(13)	(15)	(16)	(18)	(19)	(21)
OECD countries	Australia[1]	m	m	m	68	74	x(10)	x(12)	38	40	x(10)	x(12)	68	74	38	40
	Austria	m	m	m	17	21	51	44	2	2	21	18	17	21	74	64
	Belgium	m	m	m	61	66	a	a	20	18	11	14	37	42	55	57
	Canada[1]	79	75	83	76	81	a	a	8	8	a	a	76	81	8	8
	Czech Republic	88	86	90	60	70	n	n	27	20	a	a	21	26	67	64
	Denmark	85	78	93	55	66	a	a	47	49	n	n	55	66	47	50
	Finland	97	92	102	97	102	a	a	a	a	a	a	52	62	87	95
	France	m	m	m	52	60	12	11	4	4	45	45	52	60	61	60
	Germany	100	99	100	41	47	58	53	a	a	1	n	41	47	58	53
	Greece	96	93	99	66	74	a	a	30	26	x(10)	x(12)	66	74	30	26
	Hungary	84	79	90	72	80	a	a	15	12	x(10)	x(12)	72	80	15	12
	Iceland	86	69	104	59	76	1	2	37	28	19	26	62	80	54	53
	Ireland	90	84	96	91	98	a	a	5	5	23	36	68	71	52	68
	Italy	85	82	88	77	83	1	1	a	a	22	20	34	45	66	58
	Japan	93	92	94	70	74	1	n	22	20	x(10)	x(12)	70	74	23	20
	Korea	91	90	93	66	67	a	a	25	25	a	a	66	67	25	25
	Luxembourg	75	70	79	43	52	10	8	20	18	2	1	28	33	47	46
	Mexico	43	39	46	39	43	a	a	3	4	a	a	39	43	3	4
	Netherlands	m	m	m	60	66	a	a	18	19	21	17	35	38	64	64
	New Zealand	74	66	84	x(1)	x(3)	x(1)	x(3)	x(1)	x(3)	x(1)	x(3)	x(1)	x(3)	x(1)	x(3)
	Norway	92	82	102	58	71	a	a	39	35	m	m	58	71	39	35
	Poland	84	80	88	77	86	a	a	12	8	a	a	58	69	32	25
	Portugal	65	56	74	65	74	x(4)	x(6)	x(4)	x(6)	x(4)	x(6)	46	55	19	19
	Slovak Republic	85	82	87	73	80	a	a	19	14	1	2	23	28	71	67
	Spain	74	67	82	45	53	a	a	19	19	20	22	45	53	39	42
	Sweden	74	72	77	74	76	n	n	1	n	n	n	33	39	41	38
	Switzerland	89	90	88	26	29	66	61	6	7	x(10)	x(12)	31	36	67	61
	Turkey	58	63	54	58	54	a	a	a	a	m	m	37	37	21	17
	United Kingdom	89	86	92	m	m	m	m	m	m	m	m	m	m	m	m
	United States	78	77	78	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average	*82*	*78*	*87*	*61*	*67*	*8*	*7*	*16*	*15*	*10*	*11*	*48*	*55*	*45*	*43*
	EU19 average	*85*	*80*	*89*	*63*	*70*	*8*	*7*	*14*	*13*	*11*	*12*	*43*	*50*	*51*	*50*
Partner countries	Brazil	m	m	m	54	64	5	7	a	a	a	a	54	64	5	7
	Chile	71	67	75	71	75	a	a	a	a	a	a	39	43	32	32
	Estonia	m	m	m	76	83	a	a	a	a	1	1	58	71	19	13
	Israel	92	89	96	90	95	a	a	3	1	a	a	60	67	32	29
	Russian Federation	m	m	m	56	x(4)	14	x(7)	21	12	4	2	56	x(16)	38	x(19)
	Slovenia	91	85	98	36	43	44	47	25	21	2	1	34	42	72	70

Note: Columns showing male graduation rates at upper secondary level (*i.e.* columns 5, 8, 11, 14, 17, 20) are available for consultation on line (see *StatLink* below).

Please refer to Annex 1 for information on the method used to calculate graduation rates (gross rates versus net rates) and the corresponding typical ages. Mismatches between the coverage of the population data and the graduate data mean that the graduation rates for those countries that are net exporters of students may be underestimated (for instance Luxembourg) and those that are net importers may be overestimated.

1. Year of reference 2006.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664035755120

Table A2.2.
Trends in graduation rates (first-time) at upper secondary level (1995-2007)

		1995	2000	2001	2002	2003	2004	2005	2006	2007
OECD countries	**Australia**	m	m	m	m	m	m	m	m	m
	Austria	m	m	m	m	m	m	m	m	m
	Belgium	m	m	m	m	m	m	m	m	m
	Canada[1]	m	m	77	79	83	79	80	79	m
	Czech Republic[1]	78	m	84	83	88	87	89	90	88
	Denmark	80	90	91	93	87	90	82	84	85
	Finland	91	91	85	84	90	95	94	94	97
	France	m	m	m	m	m	m	m	m	m
	Germany[1]	100	92	92	94	97	99	100	100	100
	Greece	80	54	76	85	96	93	100	98	96
	Hungary	m	93	83	82	87	86	82	85	84
	Iceland	m	67	67	79	79	84	79	87	86
	Ireland	m	74	77	78	91	92	91	87	90
	Italy	m	78	81	78	m	82	81	84	85
	Japan[1]	91	94	93	92	91	91	93	93	93
	Korea[1]	88	96	100	99	92	94	94	93	91
	Luxembourg	m	m	m	69	71	69	75	71	75
	Mexico	m	33	34	35	37	39	40	42	43
	Netherlands	m	m	m	m	m	m	m	m	m
	New Zealand[1]	72	80	79	77	78	75	72	74	74
	Norway	77	99	105	97	92	100	89	88	92
	Poland	m	90	93	91	86	79	85	81	84
	Portugal	67	52	48	50	59	53	51	54	65
	Slovak Republic	85	87	72	60	56	83	83	84	85
	Spain[1]	62	60	66	66	67	66	72	72	74
	Sweden	62	75	71	72	76	78	78	76	74
	Switzerland[1]	86	88	91	92	89	87	89	89	89
	Turkey	37	37	37	37	41	55	48	52	58
	United Kingdom[1]	m	m	m	m	m	m	86	88	89
	United States	69	70	71	73	74	75	75	77	78
	OECD average	***77***	***76***	***77***	***77***	***78***	***81***	***80***	***81***	***82***
	OECD average for countries with 1995 and 2007 data	***77***								***84***
	EU19 average	***78***	***78***	***78***	***78***	***81***	***82***	***83***	***83***	***85***
Partner countries	**Brazil**	m	m	m	m	m	m	m	m	m
	Chile	46	63	m	61	64	66	73	71	71
	Estonia	m	m	m	m	m	m	m	75	m
	Israel	m	m	m	90	89	93	90	90	92
	Russian Federation	m	m	m	m	m	m	m	m	m
	Slovenia[1]	m	m	m	m	m	m	83	97	91

Note: Up to 2004, graduation rates at upper secondary level were calculated on a gross basis. From 2005 and for countries with available data, graduation rates are calculated as net graduation rates (*i.e.* as the sum of age-specific graduation rates).
1. The graduation rates are calculated on a gross basis.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664035755120

A2

Table A2.3.

Post-secondary non-tertiary graduation rates (2007)

Sum of graduation rates for single year of age, by programme destination and gender

		Total (first-time graduates)			ISCED 4A (designed to prepare for direct entry to tertiary-type A education)			ISCED 4B (designed to prepare for direct entry to tertiary-type B education)			ISCED 4C		
		M + F	Males	Females	M + F	Males	Females	M + F	Males	Females	M + F	Males	Females
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries	Australia[1]	m	m	m	a	a	a	a	a	a	17.2	14.1	20.3
	Austria	m	m	m	21.6	18.6	24.9	2.6	0.9	4.5	2.3	1.6	3.1
	Belgium	m	m	m	7.2	7.4	7.1	3.1	2.8	3.3	11.4	9.7	13.2
	Canada	m	m	m	m	m	m	a	a	a	m	m	m
	Czech Republic	22.7	20.4	25.2	22.5	20.1	25.0	a	a	a	0.2	0.2	0.2
	Denmark	1.0	1.1	0.8	1.0	1.2	0.8	a	a	a	a	a	a
	Finland	3.3	3.1	3.6	a	a	a	a	a	a	7.1	6.2	8.1
	France	m	m	m	0.7	0.5	0.8	a	a	a	0.8	0.4	1.1
	Germany	18.3	17.9	18.6	12.1	11.0	13.3	6.2	7.0	5.4	a	a	a
	Greece	10.1	9.6	10.8	a	a	a	a	a	a	10.2	9.6	10.8
	Hungary	19.4	18.5	20.4	a	a	a	a	a	a	24.4	22.4	26.5
	Iceland	9.3	10.7	7.6	n	n	n	n	n	n	9.6	11.2	7.8
	Ireland	9.3	16.1	2.4	a	a	a	a	a	a	9.3	16.1	2.4
	Italy	3.0	2.3	3.8	a	a	a	a	a	a	3.0	2.3	3.8
	Japan	m	m	m	m	m	m	m	m	m	m	m	m
	Korea	a	a	a	a	a	a	a	a	a	a	a	a
	Luxembourg	2.3	3.4	1.1	a	a	a	a	a	a	2.3	3.4	1.1
	Mexico	a	a	a	a	a	a	a	a	a	a	a	a
	Netherlands	m	m	m	a	a	a	a	a	a	1.1	1.5	0.7
	New Zealand	19.9	15.8	23.7	x(1)	x(2)	x(3)	x(1)	x(2)	x(3)	x(1)	x(2)	x(3)
	Norway	4.5	6.3	2.7	1.1	1.6	0.5	a	a	a	3.7	5.1	2.4
	Poland	12.8	10.1	15.6	a	a	a	a	a	a	12.8	10.1	15.6
	Portugal	0.7	1.0	0.4	x(1)	x(2)	x(3)	x(1)	x(2)	x(3)	x(1)	x(2)	x(3)
	Slovak Republic	2.8	3.1	2.4	2.8	3.1	2.4	a	a	a	a	a	a
	Spain	a	a	a	a	a	a	a	a	a	a	a	a
	Sweden	2.2	1.7	2.8	n	n	n	n	n	n	2.2	1.7	2.8
	Switzerland	9.9	9.2	10.6	5.6	5.9	5.2	5.0	4.0	6.1	a	a	a
	Turkey	a	a	a	a	a	a	a	a	a	a	a	a
	United Kingdom	m	m	m	m	m	m	m	m	m	m	m	m
	United States	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average	*7.2*	*7.2*	*7.3*	*3.1*	*2.9*	*3.3*	*0.7*	*0.6*	*0.8*	*4.9*	*4.8*	*5.0*
	EU19 average	*7.7*	*7.7*	*7.7*	*4.0*	*3.6*	*4.4*	*0.7*	*0.6*	*0.8*	*5.1*	*5.0*	*5.3*
Partner countries	Brazil	a	a	a	a	a	a	a	a	a	a	a	a
	Chile	a	a	a	a	a	a	a	a	a	a	a	a
	Estonia	m	m	m	a	a	a	16.5	10.9	22.3	a	a	a
	Israel	m	m	m	m	m	m	a	a	a	a	a	a
	Russian Federation	m	m	m	a	a	a	a	a	a	5.3	5.6	4.9
	Slovenia	3.3	2.6	4.0	1.3	0.8	1.9	1.9	1.8	2.1	n	n	n

Note: Please refer to Annex 1 for information on the method used to calculate graduation rates (gross rates versus net rates) and the corresponding typical ages.
Mismatches between the coverage of the population data and the graduate data mean that the graduation rates for those countries that are net exporters of students may be underestimated (for instance Luxembourg) and those that are net importers may be overestimated.
1. Year of reference 2006.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664035755120

Table A2.4.

Entry rates to tertiary education and age distribution of new entrants (2007)

Sum of net entry rates for each year of age, by gender and mode of participation

	Tertiary-type B				Tertiary-type A							Advanced research programmes			
	Net entry rates				Net entry rates				Age at:			Net entry rates			
	M+F	Adjusted[1]	Males	Females	M+F	Adjusted[1]	Males	Females	20th percentile[2]	50th percentile[2]	80th percentile[2]	M+F	Adjusted[1]	Males	Females
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD countries															
Australia	m	m	m	m	86	62	75	96	18.7	20.9	26.9	3.0	2.1	3.0	3.0
Austria	7	6	6	7	42	32	38	45	19.4	20.8	23.8	5.5	4.3	5.7	5.3
Belgium	37	37	30	44	30	30	29	31	18.3	18.7	19.7	m	m	m	m
Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Czech Republic[3]	8	m	5	12	54	49	47	60	19.6	20.5	24.9	3.4	3.0	3.8	3.0
Denmark	22	21	22	21	57	54	45	71	20.7	22.3	27.2	2.3	2.1	2.5	2.1
Finland	a	m	a	a	71	m	62	80	19.7	21.4	26.0	m	m	m	m
France	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Germany[4]	13	m	10	16	34	29	34	35	19.9	21.2	24.0	m	m	m	m
Greece	23	m	21	24	43	m	33	55	18.2	18.9	25.7	4.4	m	4.9	3.9
Hungary	11	m	7	15	63	m	55	71	19.2	20.5	26.3	1.7	m	1.7	1.7
Iceland[3]	3	3	3	3	73	61	55	92	20.9	23.0	30-34	1.4	1.2	1.3	1.5
Ireland	21	m	19	23	44	m	41	48	18.3	19.2	20.9	m	m	m	m
Italy[3, 4, 5]	n	m	n	n	53	51	45	61	19.2	19.8	21.8	2.3	2.2	2.2	2.4
Japan	30	m	23	38	46	m	52	40	18.2	18.6	19.0	1.0	m	1.4	0.6
Korea	50	m	47	53	61	m	63	59	18.3	18.8	20.0	2.2	m	2.7	1.6
Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Mexico	2	m	2	2	32	m	32	32	18.4	19.6	22.8	0.3	m	0.3	0.2
Netherlands[3]	n	m	n	n	60	56	56	65	18.4	19.7	22.6	m	m	m	m
New Zealand	48	41	42	54	76	62	63	90	18.6	21.0	30-34	2.5	1.4	2.6	2.4
Norway	n	m	n	1	66	m	52	81	18.9	20.3	30.0	2.7	m	2.7	2.7
Poland	1	m	n	1	78	m	72	85	19.4	20.3	22.9	m	m	m	m
Portugal	1	m	1	1	64	m	57	72	18.8	20.9	30-34	5.5	m	4.4	6.6
Slovak Republic	1	m	n	1	74	m	61	87	19.5	20.8	27.2	3.3	m	3.4	3.3
Spain	21	m	19	22	41	m	35	48	18.4	19.2	24.3	3.6	m	3.2	4.0
Sweden[6]	9	9	8	9	73	62	62	85	20.1	22.4	29.3	2.6	0.5	2.6	2.6
Switzerland	16	m	19	13	39	m	38	40	20.0	21.7	27.3	4.4	m	4.9	3.9
Turkey	21	m	24	18	29	m	32	26	18.5	19.8	23.6	0.5	m	0.6	0.5
United Kingdom	30	m	21	39	55	m	48	63	18.5	19.5	25.1	2.5	m	2.6	2.3
United States	x(5)	x(6)	x(7)	x(8)	65	63	57	72	18.4	19.5	27.0	m	m	m	m
OECD average	***15***		***13***	***17***	***56***		***50***	***63***				***2.8***		***2.8***	***2.7***
EU19 average	***12***		***10***	***14***	***55***		***48***	***63***				***3.4***		***3.4***	***3.4***
Partner countries															
Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Chile	49	m	52	45	41	m	39	43	18.6	19.7	25.4	0.3	m	0.3	0.3
Estonia	32	m	24	40	39	m	32	46	19.1	19.8	23.5	2.3	m	1.8	2.8
Israel	28	m	25	31	57	m	52	63	21.4	23.7	26.8	2.1	m	1.9	2.3
Russian Federation[3, 4, 5, 7]	31	30	x(1)	x(1)	66	65	x(5)	x(5)	m	m	m	2.1	m	x(12)	x(12)
Slovenia	38	m	39	37	50	m	38	63	19.2	19.7	20.8	0.5	m	0.5	0.5

Note: Mismatches between the coverage of the population data and the new entrants data mean that the entry rates for those countries that are net exporters of students may be underestimated and those that are net importers may be overestimated. The adjusted entry rates seek to compensate for that.

1. Adjusted entry rates correspond to the entry rate when international students are excluded.
2. Respectively 20, 50 and 80% of new entrants are below this age.
3. The entry rates are calculated for foreign students (defined on the basis of their country of citizenship). These data are not comparable with data on international entry rate and are therefore presented separately in Chart A2.5.
4. The entry rates for tertiary-type B programmes are calculated on a gross basis.
5. The entry rates for advanced research programmes are calculated on a gross basis.
6. International students include exchange students.
7. The entry rates for tertiary-type A programmes are calculated on a gross basis.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664035755120

A2

Table A2.5.
Trends in entry rates at tertiary level (1995-2007)

		Tertiary-type 5A[1]									Tertiary-type 5B								
		1995	2000	2001	2002	2003	2004	2005	2006	2007	1995	2000	2001	2002	2003	2004	2005	2006	2007
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD countries	**Australia**	m	59	65	77	68	70	82	84	86	m	m	m	m	m	m	m	m	m
	Austria	27	34	34	31	34	37	37	40	42	m	m	m	m	8	9	9	7	7
	Belgium	m	m	32	33	33	34	33	29	30	m	m	36	34	33	35	34	35	37
	Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	m	25	30	30	33	38	41	50	54	m	9	7	8	9	10	8	9	8
	Denmark	40	52	54	53	57	55	57	59	57	33	28	30	25	22	21	23	22	22
	Finland	39	71	72	71	73	73	73	76	71	32	a	a	a	a	a	a	a	a
	France	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Germany[2]	26	30	32	35	36	37	36	35	34	15	15	15	16	16	15	14	13	13
	Greece	15	30	30	33	35	35	43	49	43	5	21	20	21	22	24	m	31	23
	Hungary	m	64	56	62	69	68	68	66	63	m	1	3	4	7	9	11	10	11
	Iceland	m	66	61	72	83	79	74	78	73	m	10	10	11	9	8	7	4	3
	Ireland	m	32	39	39	41	44	45	40	44	m	26	19	18	17	17	14	21	21
	Italy[2]	m	39	44	50	54	55	56	55	53	m	1	1	1	1	1	a	m	n
	Japan	31	40	41	42	43	42	44	45	46	33	32	31	30	31	32	32	32	30
	Korea	41	45	46	46	47	49	51	59	61	27	51	52	51	47	47	48	50	50
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	m	27	27	35	29	30	30	31	32	m	1	2	2	2	2	2	2	2
	Netherlands	44	53	54	54	52	56	59	58	60	n	n	n	n	n	n	n	n	n
	New Zealand	83	95	95	101	107	86	79	72	76	44	52	50	56	58	50	48	49	48
	Norway	59	67	69	75	75	72	76	67	66	5	5	4	3	1	1	n	n	n
	Poland	36	65	68	71	70	71	76	78	78	1	1	1	1	1	1	1	1	1
	Portugal	m	m	m	m	m	m	m	53	64	m	m	m	m	m	m	m	1	1
	Slovak Republic	28	37	40	43	40	47	59	68	74	1	3	3	3	3	2	2	1	1
	Spain	m	47	47	49	46	44	43	43	41	m	15	19	19	21	22	22	21	21
	Sweden	57	67	69	75	80	79	76	76	73	m	7	6	6	7	8	7	10	9
	Switzerland	17	29	33	35	38	38	37	38	39	29	14	13	14	17	17	16	15	16
	Turkey	18	21	20	23	23	26	27	31	29	9	9	10	12	24	16	19	21	21
	United Kingdom	m	47	46	48	48	52	51	57	55	m	29	30	27	30	28	28	29	30
	United States	m	43	42	64	63	63	64	64	65	m	14	13	x(4)	x(5)	x(6)	x(7)	x(8)	x(9)
	OECD average	***37***	***47***	***48***	***52***	***53***	***53***	***55***	***56***	***56***	***18***	***15***	***16***	***16***	***16***	***15***	***15***	***16***	***15***
	OECD average for countries with 1995, 2000 and 2007 data	***37***	***49***							***57***	***18***	***18***							***17***
	EU19 average	***35***	***46***	***47***	***49***	***50***	***52***	***53***	***55***	***55***	***12***	***11***	***13***	***12***	***12***	***12***	***11***	***13***	***12***
Partner countries	**Brazil**	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	m	m	32	33	33	34	48	43	41	m	m	36	34	33	35	37	34	49
	Estonia	m	m	m	m	m	m	55	41	39	m	m	m	m	m	m	34	32	32
	Israel	m	32	39	39	41	44	55	56	57	m	26	19	m	17	m	25	26	28
	Russian Federation[2,3]	m	m	m	m	m	m	67	65	66	m	m	m	m	m	m	33	32	31
	Slovenia	m	m	m	m	m	m	40	46	50	m	m	m	m	m	m	49	43	38

1. The entry rate for tertiary-type A programmes includes advanced research programmes for 1995, 2000, 2001, 2002, 2003 (except for Belgium).
2. The entry rates for tertiary-type B programmes are calculated on a gross basis.
3. The entry rates for tertiary-type A programmes are calculated on a gross basis.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664035755120

HOW MANY STUDENTS FINISH TERTIARY EDUCATION?

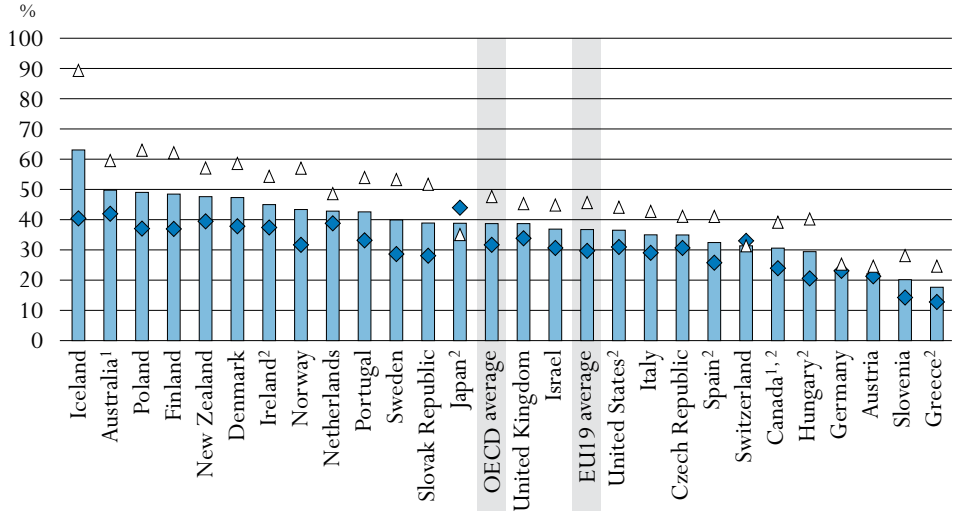
Tertiary education covers a wide range of programmes and serves overall as an indicator of countries' production of advanced skills. A traditional university degree is associated with completion of tertiary-type A courses; tertiary-type B generally refers to shorter and often vocationally oriented courses. This indicator first shows the current tertiary graduate output of education systems, *i.e.* the percentage of the population in the typical age cohort for tertiary education that successfully completes tertiary programmes, as well as the evolution of the sector since 1995. Finally, this indicator shows current tertiary completion rates in education systems, *i.e.* the percentage of students who follow and successfully complete tertiary programmes. Although "dropping out" is not necessarily an indicator of failure from the individual student's perspective, high dropout rates may indicate that the education system is not meeting students' needs.

Key results

Chart A3.1. Tertiary-type A graduation rates by gender in 2007 (first-time graduation)

The chart shows the number of students completing tertiary-type A programmes for the first time in 2007 by gender, as a percentage of the relevant group.

Based on current patterns of graduation, on average 39% of an age cohort is estimated to have completed tertiary-type A education in 2007 among the 24 OECD countries with comparable data. Differences between countries are greater when gender is taken into consideration. Significantly more females obtain tertiary-type A qualifications than males, with graduation rates of 47% and 31%, respectively. The gender gap is more than 25 percentage points in Finland, Norway, Poland and Sweden and nearly 50 percentage points in Iceland.



1. Year of reference 2006.
2. The graduation rates for tertiary-type A programmes are calculated on a gross basis.

Countries are ranked in descending order of the graduation rates for tertiary-type A education, for both males and females.

Source: OECD. Table A3.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Other highlights of this indicator

- Tertiary-type A graduation rates range from 20% or less in Greece to 45% or more in Australia, Denmark, Finland, Iceland, Ireland, New Zealand and Poland. For countries with a higher number of international students, the graduation rate is artificially inflated; the adjusted graduation rates – when international students are excluded – for Australia and New Zealand are at 36% and 37% respectively.

- On average in OECD countries, the tertiary-type A graduation rate has risen by 18 percentage points over the last 12 years. In every country for which comparable data are available, tertiary-type A graduation rates increased between 1995 and 2007, often quite substantially.

- Based on current patterns of graduation, on average 9% of an age cohort is estimated to have completed tertiary-type B education in 2007 among the 22 OECD countries with comparable data and 1.5% programmes leading to advanced research qualifications.

- On average among the 18 OECD countries for which data are available in 2005, 30% of tertiary students fail to successfully complete a programme equivalent to this level of education. Completion rates differ widely among OECD countries. In Hungary and New Zealand, more than 40% of those who enter tertiary programmes leave without tertiary qualifications (in either tertiary-type A or tertiary-type B programmes) in contrast to their counterparts in Belgium (Flemish Community), Denmark, France, Germany and Japan and the partner country the Russian Federation, where the proportion is less than 25%.

- Beginning but not completing a tertiary-type A programme does not necessarily represent a failure if students benefit from the time spent in the programme and move successfully to the tertiary-type B education track. In France and to a lesser extent in Denmark and New Zealand, a significant proportion of students (15% in France and 3% in the two other countries) who do not complete the tertiary-type A programme are successfully re-oriented to a tertiary-type B programme.

A3

Policy context

Attainment of upper secondary education has become the norm in most countries today. In addition, most students are graduating from upper secondary programmes designed to provide access to tertiary education, leading to increased enrolments at this higher level (see Indicator A2). Countries with high graduation rates at the tertiary level are also those most likely to develop or maintain a highly skilled labour force.

Tertiary level dropout and completion rates can be useful indicators of the internal efficiency of tertiary education systems. However, students may leave a tertiary programme for many reasons: they may realise that they have chosen a subject or educational programme that is not a good fit for them; they may fail to meet the standards set by their educational institution, particularly in tertiary systems that provide relatively broad access; or they may find attractive employment before completing their programme. Dropping out is not necessarily an indication of an individual student's failure, but high drop out rates may well indicate that the education system is not meeting the needs of students. Students may find that the educational programmes offered do not meet their expectations or their labour market needs. It may also be that programmes take longer than the number of years for which students can justify being outside the labour market.

Evidence and explanations

Tertiary graduation rates show the rate at which each country's education system produces advanced skills. But tertiary programmes vary widely in structure and scope among countries. Tertiary graduation rates are influenced both by the degree of access to tertiary programmes and by the demand for higher skills in the labour market. They are also affected by the way in which the degree and qualification structures are organised within countries.

Graduation rates at the tertiary level

Tertiary-type A programmes are largely theory-based and are designed to provide qualifications for entry into advanced research programmes and professions with high skill requirements. The organisation of tertiary-type A programmes differs among countries. The institutional framework may be universities or other institutions. The duration of programmes leading to a first tertiary-type A qualification ranges from three years (*e.g.* the bachelor's degree in many colleges in Ireland and the United Kingdom in most fields of education, and the *licence* in France) to five years or more (*e.g.* the *Diplom* in Germany).

In many countries there is a clear distinction between first and second university degrees, (*i.e.* undergraduate and graduate programmes), but this is not always the case. In some systems, degrees that are internationally comparable to a master's degree are obtained through a single programme of long duration. To ensure international comparability, it is therefore necessary to compare degree programmes of similar cumulative duration, as well as completion rates for first degree programmes.

To allow for comparisons that are independent of differences in national degree structures, tertiary-type A degrees are subdivided according to the total theoretical duration of study – the standard (set out by law or regulations) number of years in which a student can complete the education programme. Specifically, the OECD classification divides degrees into three groups: medium (three to less than five years), long (five to six years) and very long (more than six years).

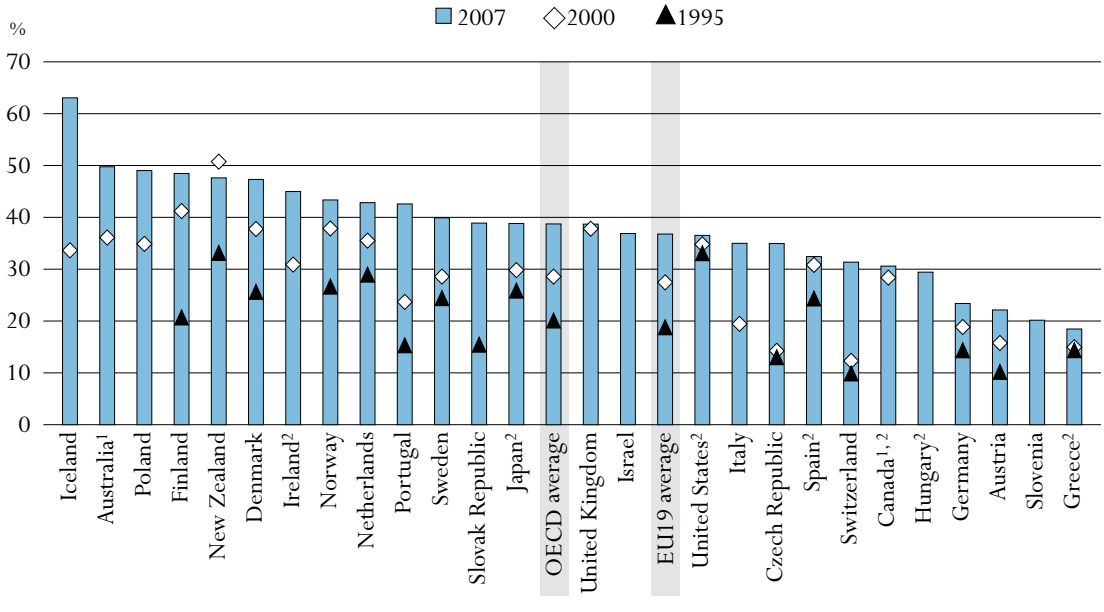
Degrees obtained from programmes of less than three years' duration are not considered equivalent to the completion of the tertiary-type A level of education and are therefore not included in this indicator. Second degree programmes are classified according to the cumulative duration of the first and second degree programmes. Individuals who already hold a first degree are deducted.

First-time tertiary-type A graduation rates

Based on current patterns of graduation, on average 39% of an age cohort among the 24 OECD countries with comparable data are estimated to have completed tertiary-type A education in 2007. This figure ranged from less than 20% in Greece to 45% or more in Australia, Denmark, Finland, Iceland, Ireland, New Zealand and Poland. Note however that the graduation rates for countries with a high proportion of international students (*e.g.* Australia and New Zealand) are artificially inflated as all international graduates are by definition first-time graduates, regardless of their previous education in other countries. Therefore, the adjusted graduation rates – when international students are excluded - for Australia and New Zealand are at 36% and 37% respectively (Table A3.1).

Disparities among countries are greater when gender is taken into consideration. On average in OECD countries, the number of females who obtain tertiary-type A qualifications is significantly higher than the number of males; females' graduation rate is 47% compared to 31% for males. The gender gap is equal or superior to 25 percentage points in Finland, Norway, Poland and Sweden and nearly 50 percentage points in Iceland. In Austria, Germany and Switzerland, the sexes are quite balanced. In Japan significantly more males graduate from tertiary-type A programmes (Chart A3.1).

Chart A3.2. Tertiary-type A graduation rates in 1995, 2000 and 2007 (first-time graduation)



1. Year of reference 2006 instead of 2007.
2. The graduation rates for tertiary-type A programmes are calculated on a gross basis.
Countries are ranked in descending order of the graduation rates for tertiary-type A education in 2007.
Source: OECD. Table A3.2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664042306054

On average in OECD countries, tertiary-type A graduation rates increased by 18 percentage points over the last 12 years. In every country for which comparable data are available, these rates increased between 1995 and 2007, often quite substantially.

From 1995 to 2007, tertiary graduation rates evolved quite differently in OECD and partner countries. In Denmark, Finland, New Zealand, Norway and Spain, increases were more marked from 1995 to 2000 than from 2000 to 2007. New Zealand has even experienced a decline in its graduation rate since 2000, mainly due to the fluctuation of international students entering and leaving the country. However, in the Czech Republic, Greece, Japan, Portugal, Sweden and Switzerland the increase occurred mainly in the last seven years (Chart A3.2).

The most significant increases between 2000 and 2007 were reported in the Czech Republic and Switzerland where the rate almost tripled over this period, and to a lesser extent in Iceland, Italy and Portugal. In Switzerland, the striking increase at the beginning of the 21st century reflected the 1997 creation of the *Fachhochschulen* (Universities of Applied Science) and the later extension of these programmes to more institutions and programmes. Austria and Germany, despite an increase of tertiary-type A graduation rate (courses have been shortened and numerus *clausus* restrictions have been eased for Germany), are still well behind the OECD average. First-time graduation rates in Greece have fluctuated since 1995 and in 2007 were the lowest of all OECD countries. The government has recently enacted a reform to improve the quality of tertiary education outcomes (*e.g.* limit the duration of academic study, improve the governance of universities). Due to the progressive expansion of the BaMa structure in the Czech Republic, the graduation rate has grown rapidly in recent years; in 2004, 13 000 new bachelors and 7 000 new "consequential" masters in 2006 were registered. In 2005, there were 19 000 new bachelors and 11 000 new "consequential" masters in 2007. In Italy, the large increase between 2002 and 2005 was largely due to structural change. The reform of the Italian tertiary system in 2002 allowed university students who had originally enrolled in programmes of longer duration to obtain a degree after three years of study. Between 2000 and 2007, the graduation rate in Spain, the United Kingdom and the United States didn't increase as much as in other countries.

Tertiary-type A: the shorter the programme, the higher the participation and graduation rates

The duration of tertiary studies tends to be longer in EU countries than in other OECD countries. Two-thirds of all OECD tertiary-type A students graduate from programmes with a duration of three to less than five years compared to less than 56 % in EU countries (Table A3.1).

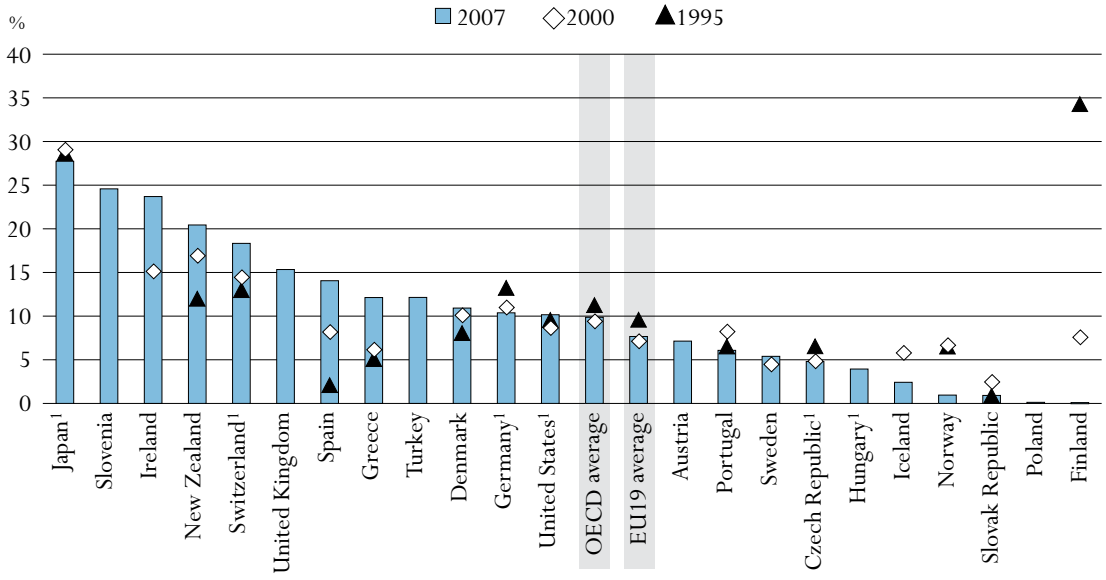
Overall, tertiary-type A graduation rates tend to be higher in countries in which programmes are mainly of shorter duration. Tertiary-type A graduation rates are around 40% or more in Australia, Sweden and the United Kingdom, where programmes of three to less than five years are the norm (95% or more of graduates follow programmes of three to less than five years). In contrast, in Austria and Germany, most students complete programmes of at least five years' duration and tertiary-type A graduation rates are below 25%. In the future, with the implementation of the Bologna process (see Box A3.1 in *Education at a Glance 2008*), there may be fewer programmes of long duration in European countries. Poland is a notable exception: despite typically long tertiary-type A programmes, its tertiary-type A graduation rate is over 40% (Table A3.1).

First-time tertiary-type B graduation rates

Tertiary-type B programmes are classified at the same competency level as tertiary-type A programmes but are more occupationally oriented and usually lead to direct labour market access. They are typically of shorter duration than tertiary-type A programmes – usually two to three years – and are generally not intended to lead to university-level degrees. Graduation rates for tertiary-type B programmes average some 9% of an age cohort for the 22 OECD countries with comparable data. In fact, graduation from tertiary-type B programmes is a significant feature of the tertiary system in only a few countries, most notably Ireland, Japan and New Zealand and the partner country Slovenia, where over 20% of the age cohort obtained tertiary-type B qualifications in 2007 (Table A3.1).

Trends in provision of and graduation from tertiary-type B programmes vary even though the OECD average has been stable over the past 12 years. For instance, in Spain, the sharp rise in tertiary-type B graduation rates between 1995 and 2007 is attributable to the development of new advanced level vocational training programmes. In contrast, in Finland these programmes are being phased out and the proportion of the age cohort graduating from them has thus fallen rapidly (Table A3.2).

Chart A3.3. Tertiary-type B graduation rates in 1995, 2000 and 2007 (first-time graduation)



1. The graduation rates for tertiary-type B programmes are calculated on a gross basis.
Countries are ranked in descending order of the graduation rates for tertiary-type B education in 2007.
Source: OECD. Table A3.2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664042306054

Advanced research qualification rates

For the 29 OECD countries with comparable data, 1.5% of the population obtained an advanced research qualification (such as a Ph.D.) in 2007. The proportion ranges from 0.1% in the partner country Chile to more than 2% in Finland, Germany, Portugal, Sweden, Switzerland and the United Kingdom (Table A3.1).

Graduation rates: first and second degrees and advanced research qualifications

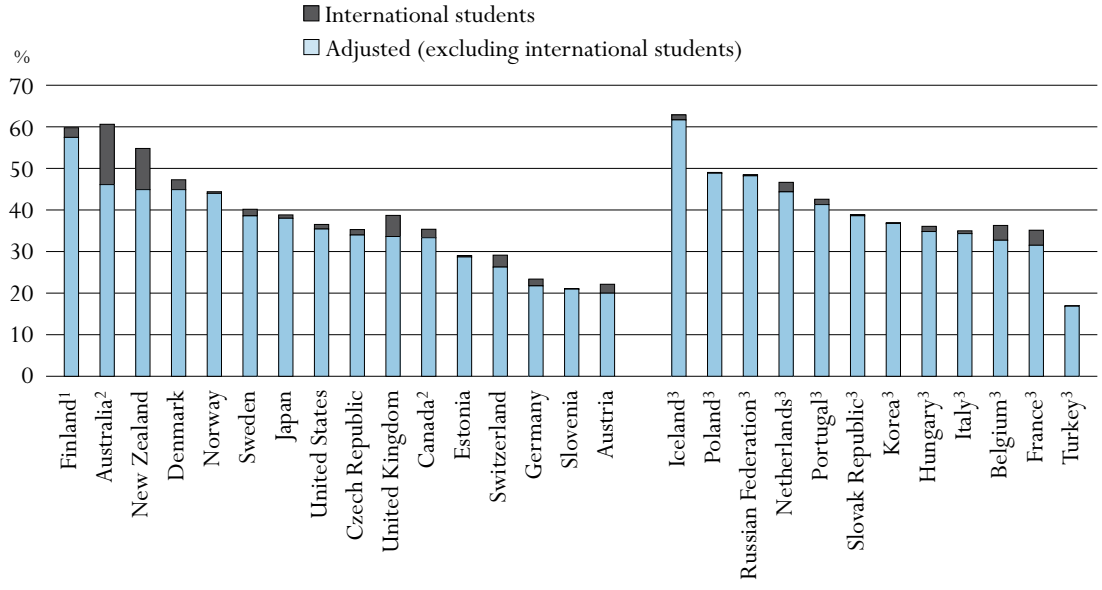
Graduation rates for first degrees are available for all countries; however, this is not the case for first-time graduation rates, as in some countries educational data reporting systems do not include sufficient information on first-time graduates.

In 2007, on average among OECD countries, more than one third of an age cohort are estimated to have completed their first degree at tertiary-type A level. The proportion exceeds 50% in Australia, Finland, Iceland and New Zealand. By contrast, the graduation rate is less than 20% in Mexico and Turkey and in the partner country Chile. The partner country Slovenia is the only country in which more people obtained their first degree from more occupationally oriented programmes (tertiary-type B) than from the largely theory-based programmes (tertiary-type A). In Korea and the partner country Chile, the rates of graduation from both types of programmes are similar (Table A3.3).

International students' contribution to graduate output

International students make a significant contribution to the tertiary graduate output in a number of countries and these students have a marked impact on estimated graduation rates. In order to compare graduation rates across countries it is important to examine the impact of international students on the graduate output.

Chart A3.4. Graduation rate at tertiary-type A level (first degree): impact of international students (2007)



1. First degrees programmes include second degrees.
2. Year of reference 2006.
3. The graduation rates at tertiary-type A first degree level are calculated for foreign students (defined on the basis of their country of citizenship). These data are not comparable with data on international graduates and are therefore presented separately.

Countries are ranked in descending order of the adjusted graduates in tertiary-type A first degree programmes.

Source: OECD. Table A3.3. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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In Australia, New Zealand and to a lesser extent the United Kingdom, the impact of international students on the graduation rate at tertiary-type A first degrees level is represented by a drop of 15, 10 and 5 percentage points respectively. This pattern implies that the true domestic graduate output is significantly overestimated as a proportion of overall graduation rates. This is most significant for tertiary-type A second degree programmes in Australia and the United Kingdom, where graduation rates drop by 10 and 9 percentage points when international graduates are excluded. International graduates in advanced research programmes represent more than 40% of the graduate output in Switzerland and the United Kingdom. The contribution of international students to the graduate output is also significant at tertiary-type A first degree – although to a lesser extent (around 10% of the graduate output) – in Austria and Switzerland. Among countries for which data on student mobility are not available, the contribution of foreign students is 10% or more in Belgium and France (Chart A3.4).

Completion rate in tertiary education

Overall tertiary completion rates count as "completing" students who enter a tertiary-type A programme and who graduate with either a tertiary-type A or a type B qualification, or those who enter a tertiary-type B programme and who graduate with either a tertiary-type A or a tertiary-type B qualification. On average among the 18 OECD countries for which data are available in 2005, some 30% of tertiary students fail to successfully complete a programme equivalent to this level of education. Completion rates differ widely among OECD and partner countries. In Hungary and New Zealand, more than 40% of those who enter a tertiary programme leave without a tertiary qualification (either tertiary-type A or tertiary-type B) in contrast to their counterparts in Belgium (Flemish Community), Denmark, France, Germany and Japan and the partner country the Russian Federation, where the proportion is less than 25% (Chart A3.5).

The difference between the proportion of skilled jobs and the proportion of people with tertiary education (see Indicator A1) suggests that most countries may benefit from further increase in the output of tertiary graduates. Increasing the proportion of students who enter a tertiary programme and leave with a tertiary qualification can help to improve the internal efficiency of tertiary education systems, especially when a small proportion of upper secondary graduates enter tertiary education or when the graduation rate is relatively low compared to the OECD average. In terms of three variables (entry, graduation and completion rates), two countries may have similar graduation rates but significant differences on the two other variables, so that they should adopt different strategies to improve their internal efficiency. For example, Japan and Sweden had similar first-time graduation rates in 2007 (39% and 40%, respectively) but also significant differences in the level of entry and completion rates in tertiary-type A education. Whereas Japan counterbalances below-average entry rates into tertiary-type A programmes (41% in 2001 against 48% on average) with, at 91%, the highest completion rates among OECD and partner countries, Sweden had an entry rate well above the average in 2001 (69%) but a below-average completion rate (69%) (see Indicator A2).

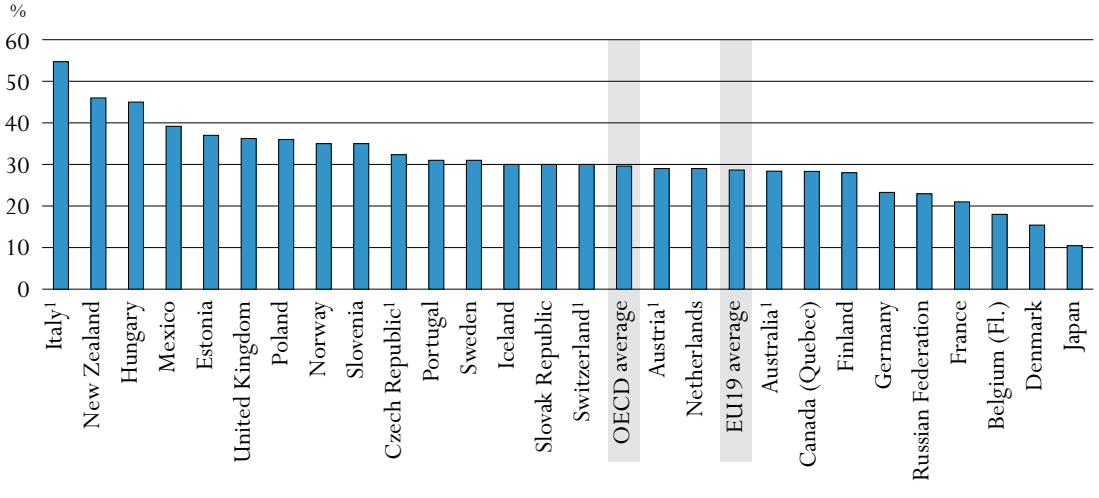
Completion rates in tertiary-type A and tertiary-type B education

On average among the 24 OECD countries for which data are available, some 31% of tertiary-type A students fail to successfully complete the programme they enter. However completion rates differ widely among OECD countries. In Hungary, Italy, New Zealand and the United States, less

than 60% of those who enter tertiary-type A programmes go on to successfully complete their programme, in contrast to their counterparts in Denmark, the United Kingdom and the partner country the Russian Federation where the completion rates are around 80%, and in Japan where it is 91%. Tertiary-type B completion rates are, at 64% on average, somewhat lower than those for tertiary-type A programmes, and again there is wide variation among countries. Tertiary-type B completion rates range from above 80% in Belgium (Flemish Community), Denmark and Japan to below 40% in New Zealand and the United States (Table A3.4).

OECD countries with low tuition fees in tertiary-type A education often debate whether they should increase those fees in order to improve completion rates. In fact, some OECD countries have already increased tuition fees (while exempting some students for academic merit), based on the idea that higher fees will increase students' incentives to finish their studies quickly. However, it is difficult to see a relationship between completion rates in tertiary-type A programmes and the level of tuition fees charged by tertiary-type A institutions. The countries in which tuition fees charged by tertiary-type A public educational institutions exceed USD 1 500 and with available completion rate data are Australia, Canada, Japan, the Netherlands, New Zealand, the United Kingdom and the United States (see Indicator B5). Completion rates are significantly lower than the OECD average (69%) in New Zealand and the United States but above 70% in the others. By way of contrast, Denmark does not charge tuition fees and provides a high level of public subsidies for students but has completion rates (81%) above the OECD average. This is not surprising because all indicators on tertiary education and especially on rates of return show that compared to upper secondary attainment, tertiary-type A educational attainment significantly benefits individuals in terms of earnings and employment. This can create a sufficiently big incentive, independently of the level of tuition fees, for students to finish their studies (see Indicator A10 in *Education at a Glance 2008*).

Chart A3.5. Proportion of students who enter a tertiary programme and leave without at least a first tertiary degree (2005)



1. Tertiary-type A programmes only.

Countries are ranked in descending order of the proportion of students who enter into a tertiary programme and leave without at least a first tertiary degree.

Source: OECD. Table A3.4. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Beginning a tertiary-type A programme but not graduating is not necessarily linked to failure if students can be successfully re-oriented towards tertiary-type B education. Thus, in France and to a lesser extent in Denmark and New Zealand, a significant proportion of students (15% in France and 3% in the other two) who have not completed tertiary-type A level are successfully re-oriented to tertiary-type B level. In other words, in France, out of 100 students who start a tertiary-type A programme, 64 will receive at least a first tertiary-type A qualification, 15 will be re-oriented to a tertiary-type B programme and only 21 will leave without a tertiary qualification. Re-orientation is more frequent in tertiary-type B education; in Iceland and New Zealand, 22% and 9%, respectively, of students who do not complete this level are re-oriented to a tertiary-type A programme. Among these countries, only New Zealand has a large proportion of students enrolled in tertiary-type B education (Table A3.4).

In addition, in some countries not all students follow courses offered in tertiary-type A education in order to obtain a degree. For instance, an individual might attend courses in a given programme on a part-time basis for professional development, with no intention of completing the associated degree. Some other tertiary students (generally mature students) may also follow courses that are not part of a programme leading to a degree to increase their lifelong learning perspectives.

Lastly, in some countries many students successfully complete some parts of a qualification but do not finish the whole programme. Non-completion of a degree does not mean that the acquired skills and competencies are lost and not valued by the labour market in these countries. In Sweden, students can leave a tertiary-type A programme before completing it, be employed for some time, and later decide to continue their studies. They do not lose the benefit of the modules that they successfully completed in the past. In some other countries, students may successfully complete all modules they undertake, yet never enrol in enough modules to complete the qualification. For example, in New Zealand, where part-time study is more common, it is estimated that around one in five students complete all modules they enrol in, yet never enrol in enough modules to complete the qualification. This tends to mask the performance of more traditional full-time students which in 2005 was 73% at tertiary-type A level (see Table A4.2 in *Education at a Glance 2008*).

Thus, the extent to which non-completion of tertiary education is a policy problem will vary between countries and completion rates should be interpreted with caution. It will be interesting to see if changes in the labour market over the next decades in OECD and partner countries will have an effect on the incentives for individuals to complete tertiary studies. If there is further expansion of tertiary education over the next decade (which is a feasible option in most countries), completion of tertiary programmes will be more highly valued on the labour market and the benefit of entering tertiary education without graduating with at least a first degree will be eroded (see Indicator A1).

Definitions and methodologies

Data refer to the academic year 2006/07 and are based on the UOE data collection on education statistics administered by the OECD in 2007 (for details see Annex 3 at *www.oecd.org/edu/eag2009*).

Tertiary graduates are those who obtain a tertiary qualification in the specified reference year. This indicator distinguishes among different categories of tertiary qualifications: *i)* tertiary-type B

qualifications (ISCED 5B); *ii)* tertiary-type A qualifications (ISCED 5A); and *iii)* advanced research degrees of doctorate standard (ISCED 6). For some countries, data are not available for these categories. In such cases, the OECD has assigned graduates to the most appropriate category (see Annex 3 at *www.oecd.org/edu/eag2009* for a list of programmes included for each country at the tertiary-type A and tertiary-type B levels). Tertiary-type A degrees are also subdivided by their corresponding total theoretical duration of studies, to allow for comparisons that are independent of differences in national degree structures.

In Table A3.1 to Table A3.3 (from 2005 onwards), graduation rates for tertiary programmes (tertiary-type A, tertiary-type B and advanced research programmes) are calculated as net graduation rates (*i.e.* as the sum of age-specific graduation rates). Net graduation rates represent the estimated percentage of the age cohort that will complete tertiary-type A/B education (based on current patterns of graduation). Gross graduation rates are presented for countries that are unable to provide such detailed data. In order to calculate gross graduation rates, countries identify the age at which graduation typically occurs (see Annex 1). The number of graduates, regardless of their age, is divided by the population at the typical graduation age. In many countries, defining a typical age of graduation is difficult, however, because graduates are dispersed over a wide range of ages.

In Table A3.2, data on trends in graduation rates at tertiary level for the years 1995, 2000, 2001, 2002, 2003 and 2004 are based on a special survey carried out in OECD countries and four of the six partner countries in January 2007.

Data on completion rates (Table A3.4) were collected through a special survey undertaken in 2007. The completion rate is calculated as the ratio of the number of students who graduate from an initial degree during the reference year to the number of new entrants in this degree *n* years before, with *n* being the number of years of full-time study required to complete the degree. The calculation of the completion rate is defined from a cohort analysis in one-half of the countries listed in Table A3.4 (true cohort method). The estimation for the other countries assumes constant student flows at the tertiary level, owing to the need for consistency between the graduate cohort in the reference year and the entrant cohort *n* years before (cross-section method). This assumption may be an oversimplification (see Annex 3 at *www.oecd.org/edu/eag2009*).

Drop outs are defined as students who leave the specified level without graduating from a first qualification at that level. The first qualification refers to any degree, regardless of the duration of study, obtained at the end of a programme that does not have a previous degree at the same level as a pre-requisite.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/664042306054

- ***Table A3.5. Percentage of tertiary graduates, by field of education (2007)***
- ***Table A3.6. Percentage of tertiary qualifications awarded to females at tertiary level, by field of education (2007)***
- ***Table A3.7. Science graduates among 25-34 year-olds in employment, by gender (2007)***
- ***Table A3.8. Trends in net graduation rates at advanced research qualification level (1995-2007)***

Table A3.1.

Graduation rates in tertiary education (2007)

Sum of graduation rates for single year of age by programme destination and duration

		Tertiary-type B programmes (first-time graduation)				Tertiary-type A programmes (first-time graduation)							Advanced research programmes (Ph.D or equivalent)
						All programmes				Proportion of first-time graduation rates by duration of programmes (in %)			
										3 to less than 5 years	5 to 6 years	More than 6 years	
		M+F	Adjusted[1]	Males	Females	M+F	Adjusted[1]	Males	Females	M+F	M+F	M+F	M+F
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries	**Australia[2]**	m	m	m	m	49.8	35.8	41.1	58.8	95	5	n	1.9
	Austria	7.1	m	6.7	7.6	22.1	20.0	20.4	23.9	35	65	n	1.8
	Belgium	m	m	m	m	m	m	m	m	m	m	m	1.3
	Canada[2]	m	m	m	m	30.6	m	23.1	38.5	m	m	m	1.0
	Czech Republic	4.8	4.7	2.8	6.9	34.9	33.7	29.8	40.4	48	43	10	1.4
	Denmark	10.9	10.4	11.5	10.4	47.3	44.1	36.9	57.9	57	42	n	1.3
	Finland	0.1	0.1	0.2	n	48.5	m	36.1	61.4	56	43	1	2.9
	France	m	m	m	m	m	m	m	m	m	m	m	1.4
	Germany	10.4	m	7.8	13.0	23.4	21.7	22.2	24.6	41	59	n	2.3
	Greece	12.1	m	10.7	13.6	17.7	m	11.9	23.9	m	m	m	1.4
	Hungary	3.9	m	2.3	5.7	29.4	m	19.7	39.5	69	31	n	0.7
	Iceland	2.4	2.4	2.2	2.6	63.1	61.6	39.5	88.7	83	17	n	0.2
	Ireland	23.7	m	24.2	23.1	45.0	m	36.5	53.6	54	46	n	1.4
	Italy[3]	m	m	m	m	35.0	34.3	28.2	42.0	71	29	n	1.3
	Japan	27.7	m	20.4	35.5	38.8	m	43.1	34.4	84	16	1	1.1
	Korea	m	m	m	m	m	m	m	m	m	m	m	1.1
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	m	m	m	m	m	m	m	m	m	m	m	0.2
	Netherlands	n	m	n	n	42.8	m	37.9	47.9	m	m	m	1.6
	New Zealand	20.4	16.6	16.7	23.9	47.6	37.3	38.6	56.4	85	15	n	1.3
	Norway	1.0	m	0.8	1.1	43.4	m	30.8	56.3	82	12	5	1.5
	Poland	0.1	m	n	0.2	49.0	m	36.2	62.3	28	72	n	1.0
	Portugal	6.1	m	4.3	7.9	42.6	m	32.3	53.2	51	49	n	3.7
	Slovak Republic	0.9	m	0.5	1.4	38.9	m	27.2	51.0	29	71	n	1.6
	Spain	14.0	m	12.7	15.4	32.4	m	24.9	40.4	46	53	1	0.9
	Sweden	5.4	5.3	4.4	6.4	39.9	37.2	27.8	52.6	96	4	n	3.3
	Switzerland	18.3	m	23.2	13.4	31.4	m	32.1	30.7	63	24	13	3.3
	Turkey	12.1	m	13.1	11.2	m	m	m	m	85	14	1	0.3
	United Kingdom[4]	15.3	m	10.5	20.2	38.7	m	33.0	44.6	97	3	1	2.1
	United States	10.1	m	7.4	13.0	36.5	m	30.1	43.4	55	39	6	1.5
	OECD average	***9.4***		***8.3***	***10.6***	***38.7***		***30.8***	***46.9***	***64***	***34***	***2***	***1.5***
	EU19 average	***7.7***		***6.6***	***8.8***	***36.7***		***28.8***	***44.9***	***56***	***43***	***1***	***1.7***
Partner countries	**Brazil**	m	m	m	m	m	m	m	m	m	m	m	0.4
	Chile	m	m	m	m	m	m	m	m	m	m	m	0.1
	Estonia	m	m	m	m	m	m	m	m	m	m	m	0.8
	Israel	m	m	m	m	36.9	m	29.8	44.1	100	n	n	1.3
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	1.6
	Slovenia	24.6	m	19.2	30.3	20.2	m	13.4	27.4	67	33	n	1.4

Note: Please refer to Annex 1 for information on the method used to calculate graduation rates (gross rates versus net rates) and the corresponding typical ages.

Mismatches between the coverage of the population data and the graduate data mean that the graduation rates for those countries that are net exporters of students may be underestimated, and those that are net importers may be overestimated. The adjusted graduation rates seek to compensate for that.

1. Adjusted graduation rates correspond to the graduation rate when international students are excluded. International students are defined on the basis of their country of citizenship for the Czech Republic, Iceland, Italy, Netherlands and the Russian Federation. International students include exchanges students in Sweden.
2. Year of reference 2006.
3. Advanced research programme graduates refer to 2006.
4. The graduation rates for tertiary-type B programmes include some graduates who have previously graduated at this level and therefore overestimate first-time graduation.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664042306054

Table A3.2.

Trends in tertiary graduation rates (1995-2007)

Sum of graduation rates for single year of age, by programme destination

		Tertiary-type A									Tertiary-type B								
		1995	2000	2001	2002	2003	2004	2005	2006	2007	1995	2000	2001	2002	2003	2004	2005	2006	2007
OECD countries	**Australia**	m	36	44	49	50	51	50	50	m	m	m	m	m	m	m	m	m	m
	Austria	10	15	17	18	19	20	20	21	22	m	m	m	m	m	7	8	7	7
	Belgium	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Canada	27	27	27	27	28	29	35	31	m	m	m	m	m	m	m	m	m	m
	Czech Republic	13	14	14	15	17	20	25	29	35	6	5	5	4	4	5	6	6	5
	Denmark	25	37	39	41	43	44	46	45	47	8	10	12	13	14	11	10	10	11
	Finland	20	41	45	49	48	47	48	48	48	34	7	4	2	1	n	a	a	a
	France	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Germany	14	18	18	18	18	19	20	21	23	13	11	11	10	10	10	11	11	10
	Greece	14	15	16	18	20	24	25	20	18	5	6	6	7	9	11	12	12	12
	Hungary	m	m	m	m	m	29	36	30	29	m	m	m	m	m	3	4	4	4
	Iceland	m	33	38	41	45	51	56	63	63	m	6	8	6	7	5	4	4	2
	Ireland	m	30	29	32	37	39	38	39	45	m	15	20	13	19	20	24	27	24
	Italy	m	19	21	25	m	36	41	39	35	m	n	1	1	m	n	n	n	m
	Japan	25	29	32	33	34	35	36	39	39	28	29	27	27	26	26	27	28	28
	Korea	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	29	35	35	37	38	40	42	43	43	m	m	m	m	m	m	n	n	n
	New Zealand	33	50	51	46	49	50	51	52	48	12	17	17	18	20	21	21	24	20
	Norway	26	37	40	38	39	45	41	43	43	6	6	6	5	5	3	2	1	1
	Poland	m	34	40	43	44	45	45	47	49	m	m	m	n	n	n	n	n	n
	Portugal	15	23	28	30	33	32	32	33	43	6	8	8	7	7	8	9	9	6
	Slovak Republic	15	m	m	23	25	28	30	35	39	1	2	2	3	2	3	2	1	1
	Spain	24	30	31	32	32	33	33	33	32	2	8	11	13	16	17	17	15	14
	Sweden	24	28	29	32	35	37	38	41	40	m	4	4	4	4	4	5	5	5
	Switzerland	9	12	19	21	22	26	27	30	31	13	14	11	11	12	12	8	10	18
	Turkey	6	9	9	10	11	11	11	15	m	m	m	m	m	m	m	m	11	12
	United Kingdom[1]	m	37	37	37	38	39	39	39	39	m	m	12	12	14	16	17	15	15
	United States	33	34	33	32	32	33	34	36	37	9	8	8	8	9	9	10	10	10
	OECD average	*20*	*28*	*30*	*31*	*33*	*35*	*36*	*37*	*39*	*11*	*9*	*10*	*9*	*10*	*9*	*9*	*9*	*10*
	OECD average for countries with 1995 and 2007 data	*18*								*36*	*11*								*11*
	EU19 average	*18*	*27*	*29*	*30*	*32*	*33*	*35*	*35*	*37*	*9*	*7*	*8*	*7*	*8*	*8*	*8*	*8*	*8*
Partner countries	**Brazil**	m	10	10	13	15	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Israel	m	m	m	29	31	32	35	36	37	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Slovenia	m	m	m	m	m	m	18	21	20	m	m	m	m	m	m	24	26	25

Note: Up to 2004, graduation rates at the tertiary-type A or B levels were calculated on a gross basis. From 2005 and for countries with available data, graduation rates are calculated as net graduation rates (*i.e.* as the sum of age-specific graduation rates).
Please refer to Annex 1 for information on the method used to calculate graduation rates (gross rates versus net rates) and the corresponding typical ages.
1. The graduation rates for tertiary-type B programmes include some graduates who have previously graduated at this level and therefore overestimate first-time graduation.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
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Table A3.3.

Graduation rate at different tertiary levels (2007)

Sum of graduation rates for single year of age (including or excluding international/foreign students) by programme destination

	Tertiary-type B programmes (first degree)		Tertiary-type A programmes (first degree)		Tertiary-type A programmes (second degree)		Advanced research programmes	
	Graduation rate (all students)	Adjusted graduation rate (excluding international/foreign students)	Graduation rate (all students)	Adjusted graduation rate (excluding international/foreign students)	Graduation rate (all students)	Adjusted graduation rate (excluding international/foreign students)	Graduation rate (all students)	Adjusted graduation rate (excluding international/foreign students)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD countries								
Australia[1, 2]	16.7	m	60.6	46.1	17.9	7.7	1.9	1.5
Austria[1]	7.1	7.0	22.1	20.0	1.7	1.5	1.8	1.4
Belgium[3]	30.9	28.8	36.3	32.7	10.6	8.2	1.3	0.9
Canada[1, 2]	m	m	35.4	33.3	8.5	7.4	1.0	0.9
Czech Republic[1]	4.8	m	35.3	34.0	10.9	10.3	1.4	1.3
Denmark[1]	12.0	11.5	47.3	44.9	17.2	15.4	1.3	1.2
Finland[4]	0.1	0.1	59.8	57.5	0.8	x(4)	2.9	2.6
France[3]	25.2	24.4	35.1	31.5	13.9	11.0	1.4	1.0
Germany[4]	10.4	m	23.4	21.7	2.0	1.4	2.3	2.0
Greece	12.8	m	20.3	m	5.0	m	1.4	m
Hungary[3]	4.5	4.5	36.1	34.8	5.7	5.6	0.7	0.7
Iceland[3]	2.6	2.6	62.9	61.7	14.0	13.5	0.2	0.2
Ireland	23.7	m	45.0	m	17.8	m	1.4	m
Italy[3, 5]	0.7	0.7	35.0	34.3	19.1	18.6	1.3	1.2
Japan[1]	27.7	26.9	38.8	38.0	5.5	5.1	1.1	0.9
Korea[3]	34.4	34.3	36.9	36.8	3.8	3.7	1.1	1.0
Luxembourg	m	m	m	m	m	m	m	m
Mexico	1.3	m	18.6	m	2.8	m	0.2	m
Netherlands[3]	n	n	46.6	44.4	13.5	12.9	1.6	m
New Zealand[1]	24.9	20.4	54.8	44.9	15.9	13.2	1.3	1.1
Norway[1]	1.0	1.0	44.4	44.0	12.0	11.7	1.5	1.4
Poland[3]	1.0	m	49.0	48.8	33.9	33.8	1.0	m
Portugal[3]	6.1	6.0	42.6	41.3	2.9	2.8	3.7	3.4
Slovak Republic[3]	0.9	m	38.9	38.6	11.7	11.6	1.6	1.6
Spain	14.0	m	28.6	m	1.0	m	0.9	m
Sweden[1]	5.5	5.4	40.2	38.6	3.7	3.1	3.3	3.1
Switzerland[4]	25.0	m	29.1	26.3	9.4	7.6	3.3	1.9
Turkey[3]	12.1	12.1	17.0	16.9	2.6	2.6	0.3	0.3
United Kingdom[1]	15.3	14.2	38.7	33.6	22.3	13.8	2.1	1.2
United States[1]	10.1	10.0	36.5	35.4	16.1	14.5	1.5	1.0
OECD average	***11.8***		***38.5***		***10.4***		***1.5***	
EU19 average	***11.3***		***37.9***		***8.7***		***1.6***	
Partner countries								
Brazil	m	m	24.6	m	1.1	m	0.4	m
Chile	15.3	m	15.7	m	2.9	m	0.1	m
Estonia[1]	22.9	22.9	29.0	28.7	10.9	10.5	0.8	0.8
Israel	0.0	m	36.9	m	13.9	m	1.3	m
Russian Federation[3]	27.2	27.1	48.5	48.2	0.5	m	1.6	m
Slovenia[1]	28.5	28.3	21.1	21.0	3.6	3.5	1.4	1.3

Note: Please refer to Annex 1 for information on the method used to calculate graduation rates (gross rates versus net rates) and the corresponding typical ages.

Mismatches between the coverage of the population data and the graduate data mean that the graduation rates for those countries that are net exporters of students may be underestimated and those that are net importers may be overestimated. The adjusted graduation rates seek to compensate for that.

1. International graduates are defined on the basis of their country of residence.
2. Year of reference 2006.
3. The graduation rates are calculated for foreign students (defined on the basis of their country of citizenship). These data are not comparable with data on international graduates and are therefore presented separately in the Chart A3.4.
4. International graduates are defined on the basis of their country of prior education.
5. Advanced research programme graduates refer to 2006.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A3.4.

Completion rates in tertiary education (2005)

Calculated separately for tertiary-type A and tertiary-type B programmes: Number of graduates from these programmes divided by the number of new entrants to these programmes in the typical year of entrance.

		Year used for new entrants		Tertiary education		Tertiary-type A education		Tertiary-type B education	
	Method	5A	5B	Completion rates (at least first 5B or 5A programme) [1]	Leaving without tertiary qualification	5A completion rates (at least first 5A programme) [2]	Not completed 5A level but re-oriented with success at 5B level	5B completion rates (at least first 5B programme) [3]	Not completed 5B level but re-oriented with success at 5A level
				(1)	(2)	(3)	(4)	(5)	(6)
OECD countries									
Australia	Cross-section	2003-05	m	m	m	72	m	m	m
Austria	Cross-section	2000-03	m	m	m	71	m	m	m
Belgium (Fl.)	Cross-section	1998-2001	2003-04	82	18	76	m	88	m
Canada (Quebec)	True cohort	2000	2000	72	28	75	n	63	n
Czech Republic	Cross-section	m	m	m	m	68	m	m	m
Denmark[4]	True cohort	1995-96	1995-96	85	15	81	3	88	3
Finland	True cohort	1995	1995	72	28	72	a	a	a
France	True cohort	1996-2003	1996-2003	79	21	64	15	78	2
Germany	Cross-section	2001-02	2003-04	77	23	77	n	77	n
Greece	m	m	m	m	m	m	m	m	m
Hungary	Cross-section	2001-04	2004-05	55	45	57	m	44	m
Iceland	True cohort	1996-97	1996-97	70	30	66	1	55	22
Ireland	m	m	m	m	m	m	m	m	m
Italy	True cohort	1998-99	1998-99	m	m	45	m	m	m
Japan	Cross-section	2000 and 2002	2004	90	10	91	m	87	m
Korea	m	m	m	m	m	m	m	m	m
Luxembourg	m	m	m	m	m	m	m	m	m
Mexico	Cross-section	2002-03	2004-05	61	39	61	a	64	a
Netherlands	True cohort	1997-98	1997-98	71	29	71	a	m	m
New Zealand	True cohort	1998	1998	54	46	58	3	30	9
Norway	True cohort	1994-95	1994-95	65	35	67	m	66	m
Poland	Cross-section	2001-04	2003-04	64	36	63	m	71	m
Portugal	Cross-section	2001-06	2004	69	31	73	m	59	m
Slovak Republic	Cross-section	2000-03	2003-04	70	30	70	m	72	m
Spain	m	m	m	m	m	m	m	m	m
Sweden	True cohort	1995-96	1995-96	69	31	69	1	m	m
Switzerland	True cohort	1996-2001	1996-2001	m	m	70	m	m	m
Turkey	m	m	m	m	m	m	m	m	m
United Kingdom	Cross-section	2003-04	2003-04	64	36	79	m	43	m
United States[4]	True cohort	1999	2002	47	m	56	m	33	m
OECD average				***69***	***30***	***69***	~	***64***	~
EU19 average				***71***	***29***	***69***	~	***62***	~
Partner countries									
Brazil	m	m	m	m	m	m	m	m	m
Chile	m	m	m	m	m	m	m	m	m
Estonia	Cross-section	2003	2003	63	37	67	m	59	m
Israel	m	m	m	m	m	m	m	m	m
Russian Federation	Cross-section	2001-02	2002-03	77	23	79	m	76	m
Slovenia	Cross-section	2001-02	2001-02	65	35	64	m	67	m

Note: The cross section method refers to the number of graduates in the calendar year 2005 and is calculated according to the traditional OECD approach, taking into account different durations. True section method is defined from a cohort analysis and based on Panel data.

1. Completion rates in tertiary education represent the proportion of those who enter a tertiary-type A or a tertiary-type B programme, who go on to graduate from either at least a first tertiary-type A or a first tertiary-type B programme.
2. Completion rates in tertiary-type A education represent the proportion of those who enter a tertiary-type A programme, who go on to graduate from at least a first tertiary-type A programme.
3. Completion rates in tertiary-type B education represent the proportion of those who enter a tertiary-type B programme, who go on to graduate from at least a first tertiary-type B programme.
4. Only full-time students.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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INDICATOR A4

WHAT IS THE PROFILE OF 15-YEAR-OLD TOP PERFORMERS IN SCIENCE?

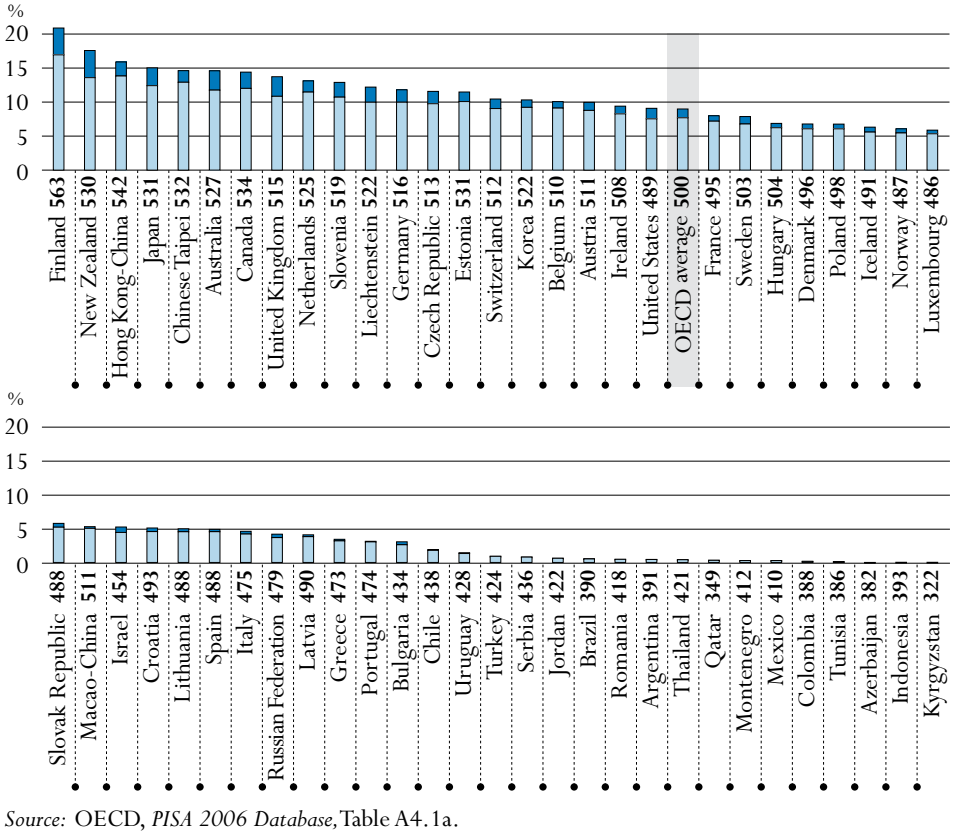
The rapidly growing demand for highly skilled workers has led to a global competition for talent. High-level skills are critical for the creation of new knowledge, technologies and innovation and therefore an important determinant of economic growth and social development. Drawing on data from the OECD's Programme for International Student Assessment (PISA), this indicator takes an in-depth look at top-performing students in science.

Key results

Chart A4.1. Percentage of top performers on the science scale in PISA 2006

The chart depicts the proportion of top performers in science defined as those 15-year-old students who are proficient at Levels 5 and 6 on the PISA 2006 science scale, and indicates in bold the score in science for each country.

Compared to the OECD average (9%) the proportion of top performers varies widely across countries. Some countries have more than 13% of top performers, such as Australia, Canada, Finland, Japan, the Netherlands, New Zealand, the United Kingdom, or the partner economies Chinese Taipei and Hong Kong – China, while in other countries it is less than 5% such as in Greece, Italy, Mexico, Portugal, Spain and Turkey, and the partner countries Argentina, Brazil, Bulgaria, Chile, Colombia, Jordan, Latvia, Montenegro, Qatar, Romania, the Russian Federation, Serbia, Thailand, Tunisia and Uruguay.



Source: OECD, *PISA 2006 Database,* Table A4.1a.

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Other highlights of this indicator

- On average across OECD countries, 18% of students are top performers in at least one of the subject areas of science, mathematics or reading. However, only 4% are top performers in all three areas. This highlights that excellence is not simply a question of some students performing strongly in all subject areas, but that many students have different strengths in different subject areas.

- Across subject areas and countries, female students are as likely to be top performers as male students. On average across OECD countries, the proportion of top performers across subject areas is very similar between males and females: 4.1% of females and 3.9% of males are top performers in all three subject areas and 17.3% of females and 18.6% of males are top performers in at least one subject area. However, while the gender gap among students who are top performers is small only in science (1.1% of females and 1.5% of males), it is significant among top performers in reading only (3.7% of females and 0.8% of males) as well as in mathematics (3.7% of females and 6.8% of males).

- A socio-economically disadvantaged background is not an insurmountable barrier to achieving excellence in science performance. In the typical OECD country about a quarter of top performers in science come from a socio-economic background below the country's average. In some systems, students from relatively disadvantaged backgrounds have even greater chances to be top performers: in Austria, Finland, Japan, and the partner economies Hong Kong-China and Macao-China, a third or more of the top performers in science have a socio-economic background signalling greater disadvantage than is the case on average in the country.

- In some countries students with an immigrant background or linguistic minorities excel as well, though in other countries, most notably Germany, the Netherlands and the partner country Slovenia performance differences between students with and without an immigrant background are large.

Defining and comparing top performers in PISA

Definitions used in this indicator

Top performers in science – students proficient at Levels 5 and 6 in the PISA 2006 science assessment (*i.e.*, higher than 633.33 score points)

Top performers in reading – students proficient at Level 5 in the PISA 2006 reading assessment (*i.e.*, higher than 625.61 score points)

Top performers in mathematics – students proficient at Levels 5 and 6 in the PISA 2006 mathematics assessment (*i.e.*, higher than 606.99 score points)

Note that this indicator uses the term 'top performers' as shorthand for students proficient at Levels 5 and 6 in science in PISA 2006. Unless otherwise specified, 'top performers' does not necessarily comprise top performers in reading and mathematics. The cutoff points for each level varies by subject area and the levels of proficiency are not equivalent across subject areas. In other words, it is not the same to be proficient at Levels 5 and 6 in science, mathematics or reading. Because of the different nature and content of the three testing areas the cutoff points for Levels 5 and 6 for each subject area are different and can therefore result in different proportions of top performers.

Top performers can consistently identify, explain and apply scientific knowledge and knowledge about science in a variety of complex life situations. They can link different information sources and explanations and use evidence from those sources to justify decisions. They clearly and consistently demonstrate advanced scientific thinking and reasoning, and they demonstrate use of their scientific understanding in support of solutions to unfamiliar scientific and technological situations. Students at this level can use scientific knowledge and develop arguments in support of recommendations and decisions that centre on personal, social, or global situations.

Comparing top performers in science to strong performers

Another performance group has been used for this indicator to compare top performers in science with students performing just below them, the "strong performers". Strong performers are in the performance group from which the most likely future top performers might emerge.

Strong performers in science, reading and mathematics are students proficient at Level 4 of the PISA 2006 science, reading and mathematics assessment.

Policy context

While basic competencies are generally considered important for the absorption of new technologies, high-level competencies are critical for the creation of new knowledge, technologies and innovation. For countries near the technology frontier, this implies that the share of highly educated workers in the labour force is an important determinant of economic growth and social development. There is also mounting evidence that individuals with high level skills generate relatively large amounts of knowledge creation and ways of using it, which in turn suggests that investing in excellence may benefit all. This happens, for example, because highly skilled

individuals create innovations in various areas (for example, organisation, marketing, design) that benefit all or that boost technological progress at the frontier. Research has also shown that the effect of the skill level at one standard deviation above the mean in the International Adult Literacy Study on economic growth is about six times larger than the effect of the skill level at one standard deviation below the mean.

Evidence and explanations

Distribution of top performers in science among countries

As shown in Chart A4.1, the proportion of top performers in science varies widely across countries and, interestingly, scientific excellence is only weakly related to average performance in countries. Although on average across OECD countries, 9% of 15-year-olds reach Level 5 in science, and slightly more than 1% reach Level 6, these proportions vary substantially across countries. For example, among the OECD countries, seven have at least 13% of top performers in science, whereas there are six with 5% or less. Among the partner countries and economies, the overall proportions of these top performers also vary considerably from country to country with several countries almost absent from representation at Level 6 in science. Of the 57 participating countries, 25 have 5% or fewer of their 15-year-olds reaching Level 5 or Level 6, whereas four countries have at least 15%, *i.e.* three times as many. Twenty per cent and 18% of all students are top performers in science in Finland and New Zealand respectively.

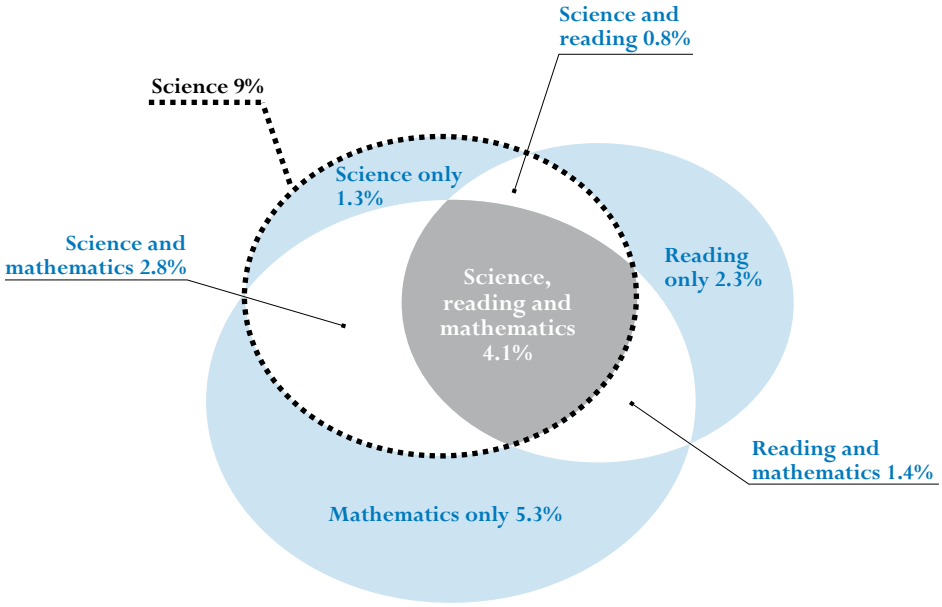
Among countries with similar mean scores in PISA there is a remarkable diversity in the percentage of top-performing students. For example, France has a mean score of 495 points in science in PISA 2006 and a proportion of 8% of students at high proficiency levels in science (both very close to the OECD average), and the partner country Latvia is also close to the OECD average in science with 490 points but has only 4% of top performers, which is less than half the OECD average of 9%. Although Latvia has a small percentage of students at the lowest levels, the result could signal the relative lack of a highly educated talent pool for the future. The variability of the proportion of students who are top performers across countries suggests a difference in countries' potential capacities to staff future knowledge-driven industries with home-grown talent. Similar variability is shown in reading and mathematics with only slight differences in the patterns of these results among countries (Table A4.1a).

Top performers in science, reading and mathematics

To what extent does the talent that top performers in science demonstrate extend to other subject areas? Chart A4.2 examines the proportion of top performers in science who are also top performers in reading and mathematics.

Chart A4.2 provides a picture of the top performers in the three subject areas across OECD countries. The parts in the diagram shaded in blue represent the percentage of 15-year-old students who are top performers in just one of the three assessment subject areas, that is, in either science, reading or mathematics. The parts in the diagram shaded in grey show the percentage of students who are top performers in two of the assessment subject areas. The white part in the middle of the diagram shows the percentage of the 15-year-old students who are top performers in all three assessment subject areas.

Chart A4.2. Overlapping of top performers in science, reading and mathematics on average in the OECD



Note: Non top performers in any of the three domains: 82.1%
Source: OECD, *PISA 2006 Database,* Table A4.2a.
StatLink http://dx.doi.org/10.1787/664076271473

Across OECD countries, 4% of 15-year-old students are top performers in all three assessment subject areas: science, reading and mathematics. About 3% of students are top performers in both science and mathematics but not in reading, while just under 1% of students are top performers in both science and reading but not in mathematics and more than 1% are top performers in both reading and mathematics but not in science. The percentage of students who are top performers in both science and mathematics is greater than the percentages who are top performers in science and reading or in reading and mathematics.

It is noteworthy that not all countries show the same patterns (Table A4.2a). There was substantial variation among countries, for example, in the percentages of top performers in science who are also top performers in both reading and mathematics. Such students comprised 9.5% of 15-year-old students in Finland, 8.9% in New Zealand, 7.8% in Korea, 7.0% in Canada, 7.7% in the partner economy Hong Kong-China, and 7.2% in the partner country Liechtenstein, while in four OECD countries and 17 partner countries and economies, less than 1% of students are top performers in all three domains.

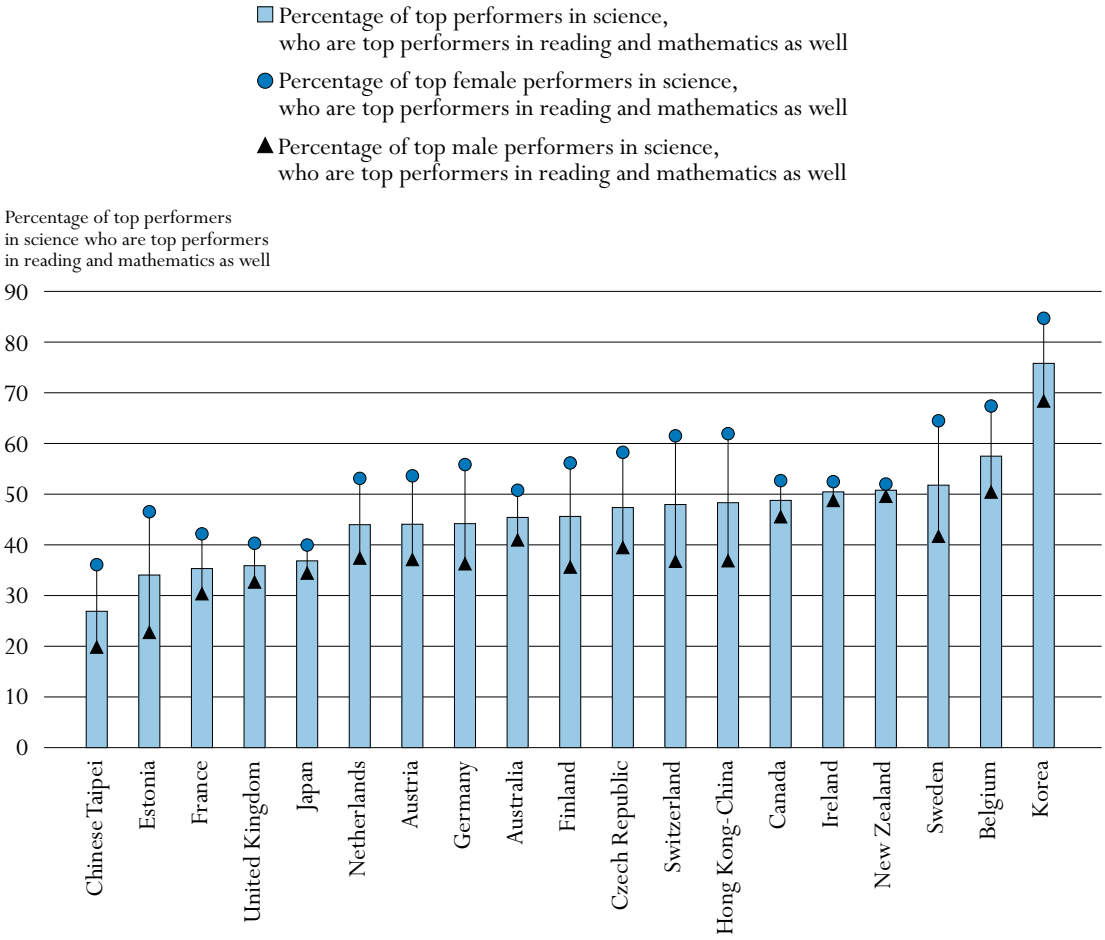
Male and female representation among top performers

Across three subject areas and countries, female students are as likely to be top performers as male students. On average across OECD countries, the proportion of top performers across subject areas is very similar between males and females: as shown in Table A4.2b, 4.1% of

females and 3.9% of males are top performers in all three subject areas and 17.3% of females and 18.6% of males are top performers in at least one subject area. These averages, however, hide significant cross country variation and some significant gender gaps across subject areas. While the gender gap among students who are top performers only in science is small (1.1% of females and 1.5% of males), the gender gap is significant among top performers in reading only (3.7% of females and 0.8% of males) as well as in mathematics only (3.7% of females and 6.8% of males).

While there is no difference in the average performance in science of males and females, males tend to show a marked advantage among the top performers. In eight of the 17 OECD countries with at least 3% of both males and females among the top performers in science, there are significantly higher proportions of males among the top performers in science (Table A4.2b).

Chart A4.3. Different strengths of males and females



Countries are ranked in ascending order of the percentage of top performers in science.
Source: OECD, *PISA 2006 Database,* Table A4.2b.

StatLink http://dx.doi.org/10.1787/664076271473

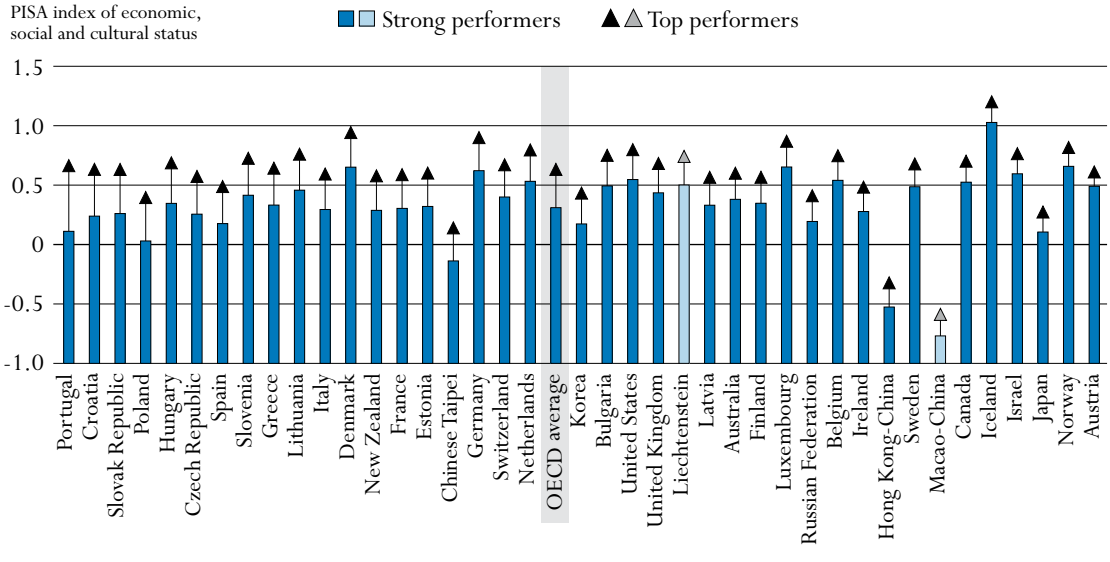
There are no countries where there are significantly higher proportions of females among the top performers in science. On average across OECD countries, almost half of the top performers in science (44%) were also top performers in reading and mathematics, but this was the case for 50% of females and 37% of males (Table A4.2a and Table A4.2b). Chart A4.3 shows the percentages of male and female top performers who are top performers in reading and mathematics as well, for countries with comparable data.

Socio-economic background of top performers

The PISA *index of economic, social and cultural status (ESCS)* provides a comprehensive measure of student socio-economic background. This index was derived from information comprising the highest educational level of parents, the highest occupational status of parents and possessions in the home. The average OECD student was given an index value of zero and about two-thirds of the OECD student population were given index values between -1 and 1 (*i.e.* the index has a standard deviation of 1). The PISA data from all three administrations to date have shown that socio-economic background and performance are closely related.

Socio-economic background is related to performance for at least two reasons. First, students from families with more educated parents, higher income and better material, educational and cultural resources are better placed to receive superior educational opportunities in the home environment as well as richer learning opportunities outside of the home relative to students from less-advantaged backgrounds. Second, such families often have much more choice over where they can enrol their children and choose schools where the student body is drawn from a more advantaged socio-economic background.

Chart A4.4. Difference in socio-economic background between top performers and strong performers



Countries are ranked in descending order of the difference in the PISA index of economic, social and cultural status (ESCS) between top and strong performers.

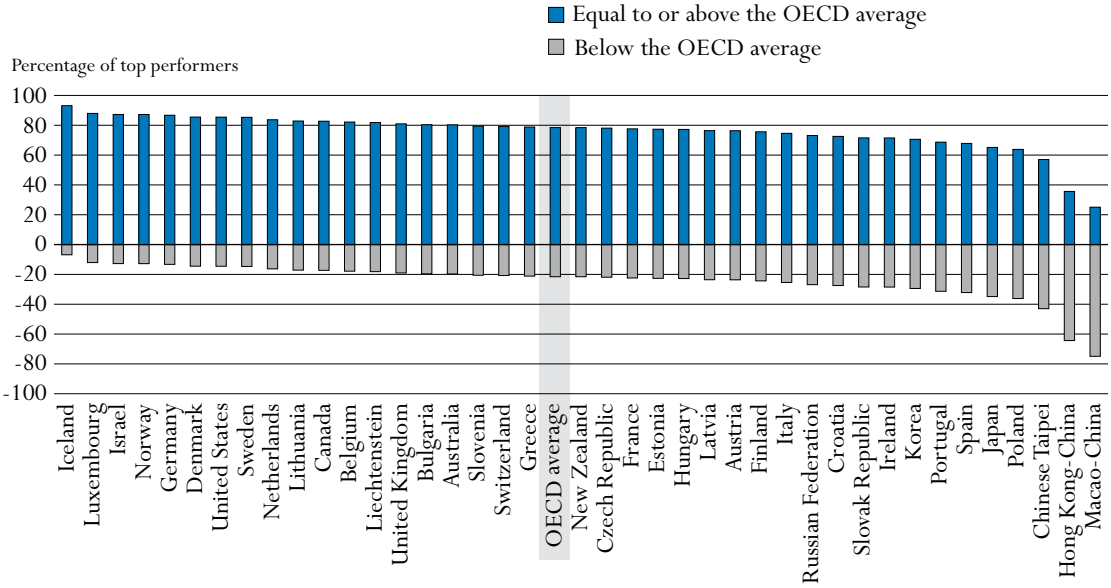
Note: Significant differences are highlighted with darker tone.

Source: OECD, *PISA 2006 Database,* Table A4.3.

StatLink http://dx.doi.org/10.1787/664076271473

Top performers tend to come from a relatively advantaged socio-economic background (Table A4.3). In virtually every country for which there are comparable data, students in the top performing category come from families with comparatively advantaged socio-economic backgrounds. Across the OECD, the average socio-economic background of top performers is around two thirds of a standard deviation above the average OECD socio-economic background. Chart A4.4 shows that even when comparing top performers to strong performers (the performance group from which the most likely future top performers might emerge), the differences in socio-economic background in favour of top performers are statistically significant in all OECD countries (on average across the OECD countries the difference is 0.26 standard deviations). For each country, on average, top performers tend to come from significantly more advantaged socio-economic backgrounds than students who are not among the top performers, but are closest to reaching those levels. In general, differences in the socio-economic background of different performance groups are marked - the more advantaged the socio-economic background, the higher the performance. These differences range from more than half of a standard deviation in Portugal to more than a tenth in Austria.

Chart A4.5. Percentage of top performers with socio-economic background (ESCS) "below" or "equal to or above" the OECD average of ESCS



Countries are ranked in ascending order of the percentage of top performers with socio-economic background below the OECD average.
Source: OECD, *PISA 2006 Database,* Table A4.3.

StatLink http://dx.doi.org/10.1787/664076271473

Yet, not all top performers come from an advantaged socio-economic background. Chart A4.5 shows that more than a fifth of top performers across the OECD countries come from a socio-economic background that is less advantaged than at the OECD on average. In Japan, Poland, Portugal or Spain, the proportion of top performers in science whose socio-economic background is more disadvantaged than at the OECD average level exceeds 30% and that proportion reaches 64% and 75% in partner economies Hong Kong-China and Macao-China.

While a disadvantaged background is not an insurmountable barrier to excellence, how much of an obstacle it becomes varies from country to country. Looking at a country's average socio-economic background in each country, in the typical OECD country about a quarter of top performers in science come from a socio-economic background below their country's average (Table A4.3). In some countries the chances for students from a relatively disadvantaged background to become top performers are even greater. For example, in Austria, Finland, Japan, and the partner economies Hong Kong-China and Macao-China, one-third or more of top performers come from a socio-economic background that is more disadvantaged than the average in their country. On the other hand, in France, Greece, Luxembourg, Portugal and the United States, as well as the partner countries Bulgaria, Israel and Lithuania, 80% or more of top performers come from a socio-economic background that is more advantaged than the average level in their country.

Immigrant background of top performers

In some countries, significant proportions of students (or their parents) were born outside of the country. Students who do not speak the language of instruction at home constitute another important minority. As the report *Where Immigrant Students Succeed: A Comparative Review of Performance and Engagement in PISA 2003* (OECD, 2005a) shows, an immigrant background can have a significant impact on student performance. While the proportion of students with an immigrant background does not seem to relate to the average performance of countries, from an equity perspective it is important to understand the effect of these background characteristics on the proportion of top performers.

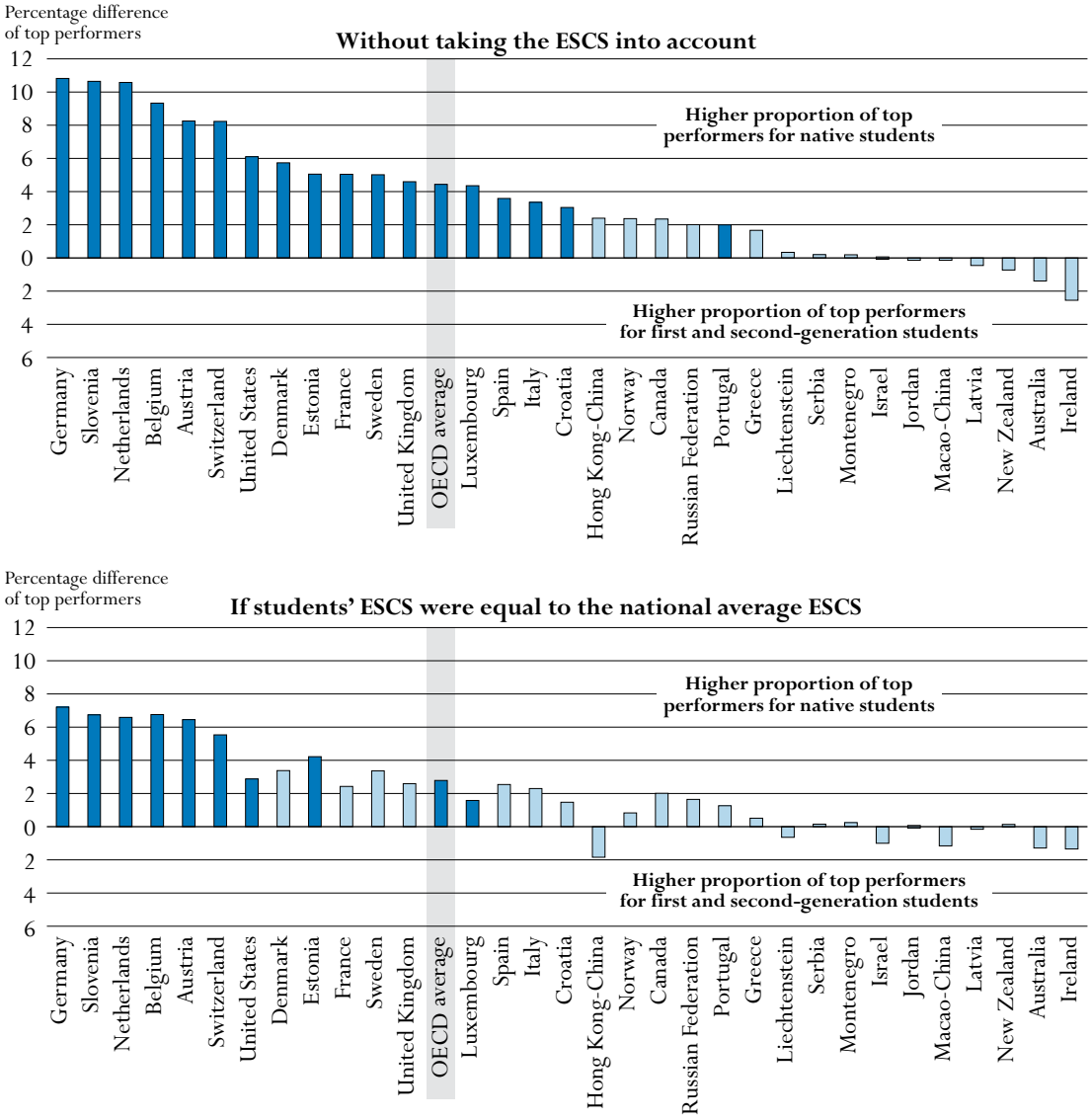
This section analyses the percentages of top performers by their immigrant status and the language they speak at home in the countries and economies where these groups of students represent more than 30 students or 3% of the student population. Native students are students who were born in the country of assessment and have at least one parent who was also born in the country of assessment. Students with an immigrant background are students whose parents were born in a foreign country.

As shown in Chart A4.6, there are more top performers in science among native students than among students with an immigrant background, but in part this just reflects differences in socio-economic backgrounds. Indeed, in half of the countries being compared, this difference is no longer significant after accounting for students' socio-economic background. A comparison of top performers between students with an immigrant background and native students shows different results across countries. In some countries, students with an immigrant background are as likely to be top performers as native students. For example, in Australia, Canada, Greece, Ireland, New Zealand, Norway and Portugal, as well as in the partner countries and economies Hong Kong-China, Israel, Jordan, Latvia, Liechtenstein, Macao-China, Montenegro, the Russian Federation and Serbia, there are no significant differences in the proportion of top performers among native students and students with an immigrant background.

The excellence gap between students from an immigrant background and native students reflects in part different immigration patterns and policies. Top performing immigrants are generally found in countries with relatively selective immigrant policies favouring more educated and resource-endowed families. For example, families moving to Australia, Canada and New Zealand

are often selected according to characteristics that are considered important for integration, such as educational qualifications and language skills (OECD, 2005a). Other countries however do not or cannot impose such restrictions. Another reason for the gap is differences in socio-economic backgrounds. In fact, in most countries the difference between native students and students with an immigrant background is not significant once students' socio-economic backgrounds are taken into account.

Chart A4.6. Percentage difference of top performers by immigrant status



Countries are ranked in descending order of the percentage difference of top performers among native students and among students with an immigrant background.

Note: Significant differences are highlighted with darker tone.

Source: OECD, *PISA 2006 Database*, Table A4.4.

StatLink http://dx.doi.org/10.1787/664076271473

In countries, speaking the national language or an official language recognised by schools is clearly an advantage in learning and testing. In these cases, the student's home language is aligned with the medium of instruction. Thus, it is no surprise that students in homes where a different language is spoken than the national or an official language face additional learning challenges and a smaller proportion of these students tend to be top performers. To a large extent, this pattern follows the distinctions between native students and students with an immigrant background. In most of the countries with available data there are significantly fewer students who do not speak the language of assessment at home represented among science top performers. The largest differences in favour of both native students and students who speak the language of assessment at home occur in Germany, the Netherlands and the partner country Slovenia (Table A4.4 and Table A4.5). In Australia, Canada, New Zealand, Norway, and the partner countries Israel and Tunisia there are similar proportions of students not speaking the language of assessment at home and students who do speak the language of assessment at home represented among the top performers.

Some countries succeed better than others in promoting excellence among linguistic and immigrant minorities. There are lessons to be learnt from these countries that may help improve excellence and equity in educational outcomes.

Definitions and methodologies

The achievement scores are based on assessments administered as part of the Programme for International Student Assessment (PISA) undertaken by the Organisation for Economic Co-operation and Development (OECD). The most recent and available PISA data were collected during the 2006 school year.

The target population studied for this indicator was 15-year-old students. Operationally, this referred to students who were from 15 years and 3 (completed) months to 16 years and 2 (completed) months at the beginning of the testing period and who were enrolled in an educational institution at the secondary level, irrespective of the grade levels or type of institutions in which they were enrolled, and irrespective of whether they participated in school full-time or part-time.

Further references

For further information about PISA 2006, see OECD (2007a) *PISA 2006: Science Competencies for Tomorrow's World*, OECD, Paris, and OECD (2009a) *Top of the Class: High Performing Learners in PISA 2006*, OECD, Paris. PISA data are also available on the PISA website: *www.pisa.oecd.org*.

Table A4.1a.

Mean score and percentage of top performers in science, reading and mathematics

		Science						Reading				Mathematics					
		Mean score		Top performers: Level 5 (from 633.33 to 707.93 score points)		Top performers: Level 6 (above 707.93 score points)		Mean score		Top performers: Level 5 (above 625.61 score points)		Mean score		Top performers: Level 5 (from 606.99 to 669.30 score points)		Top performers: Level 6 (above 669.30 score points)	
		Mean	S.E.	%	S.E.	%	S.E.	Mean	S.E.	%	S.E.	Mean	S.E.	%	S.E.	%	S.E.
OECD countries	Australia	527	(2.3)	11.8	(0.5)	2.8	(0.3)	513	(2.1)	10.6	(0.6)	520	(2.2)	12.1	(0.5)	4.3	(0.5)
	Austria	511	(3.9)	8.8	(0.7)	1.2	(0.2)	490	(4.1)	9.0	(0.7)	505	(3.7)	12.3	(0.8)	3.5	(0.5)
	Belgium	510	(2.5)	9.1	(0.5)	1.0	(0.2)	501	(3.0)	11.3	(0.6)	520	(3.0)	16.0	(0.7)	6.4	(0.4)
	Canada	534	(2.0)	12.0	(0.5)	2.4	(0.2)	527	(2.4)	14.5	(0.7)	527	(2.0)	13.6	(0.6)	4.4	(0.4)
	Czech Republic	513	(3.5)	9.8	(0.9)	1.8	(0.3)	483	(4.2)	9.2	(0.8)	510	(3.6)	12.3	(0.8)	6.0	(0.7)
	Denmark	496	(3.1)	6.1	(0.7)	0.7	(0.2)	494	(3.2)	5.9	(0.6)	513	(2.6)	10.9	(0.6)	2.8	(0.4)
	Finland	563	(2.0)	17.0	(0.7)	3.9	(0.3)	547	(2.1)	16.7	(0.8)	548	(2.3)	18.1	(0.8)	6.3	(0.5)
	France	495	(3.4)	7.2	(0.6)	0.8	(0.2)	488	(4.1)	7.3	(0.7)	496	(3.2)	9.9	(0.7)	2.6	(0.5)
	Germany	516	(3.8)	10.0	(0.6)	1.8	(0.2)	495	(4.4)	9.9	(0.7)	504	(3.9)	11.0	(0.8)	4.5	(0.5)
	Greece	473	(3.2)	3.2	(0.3)	0.2	(0.1)	460	(4.0)	3.5	(0.4)	459	(3.0)	4.2	(0.5)	0.9	(0.2)
	Hungary	504	(2.7)	6.2	(0.6)	0.6	(0.2)	482	(3.3)	4.7	(0.6)	491	(2.9)	7.7	(0.7)	2.6	(0.5)
	Iceland	491	(1.6)	5.6	(0.5)	0.7	(0.2)	484	(1.9)	6.0	(0.5)	506	(1.8)	10.1	(0.7)	2.5	(0.3)
	Ireland	508	(3.2)	8.3	(0.6)	1.1	(0.2)	517	(3.5)	11.7	(0.8)	501	(2.8)	8.6	(0.7)	1.6	(0.2)
	Italy	475	(2.0)	4.2	(0.3)	0.4	(0.1)	469	(2.4)	5.2	(0.4)	462	(2.3)	5.0	(0.4)	1.3	(0.3)
	Japan	531	(3.4)	12.4	(0.6)	2.6	(0.3)	498	(3.6)	9.4	(0.7)	523	(3.3)	13.5	(0.8)	4.8	(0.5)
	Korea	522	(3.4)	9.2	(0.8)	1.1	(0.3)	556	(3.8)	21.7	(1.4)	547	(3.8)	18.0	(0.8)	9.1	(1.3)
	Luxembourg	486	(1.1)	5.4	(0.3)	0.5	(0.1)	479	(1.3)	5.6	(0.4)	490	(1.1)	8.2	(0.5)	2.3	(0.3)
	Mexico	410	(2.7)	0.3	(0.1)	0.0	a	410	(3.1)	0.6	(0.1)	406	(2.9)	0.8	(0.2)	0.1	(0.0)
	Netherlands	525	(2.7)	11.5	(0.8)	1.7	(0.2)	507	(2.9)	9.1	(0.6)	531	(2.6)	15.8	(0.8)	5.4	(0.6)
	New Zealand	530	(2.7)	13.6	(0.7)	4.0	(0.4)	521	(3.0)	15.9	(0.8)	522	(2.4)	13.2	(0.7)	5.7	(0.5)
	Norway	487	(3.1)	5.5	(0.4)	0.6	(0.1)	484	(3.2)	7.7	(0.6)	490	(2.6)	8.3	(0.7)	2.1	(0.3)
	Poland	498	(2.3)	6.1	(0.4)	0.7	(0.1)	508	(2.8)	11.6	(0.8)	495	(2.4)	8.6	(0.7)	2.0	(0.3)
	Portugal	474	(3.0)	3.0	(0.4)	0.1	(0.1)	472	(3.6)	4.6	(0.5)	466	(3.1)	4.9	(0.4)	0.8	(0.2)
	Slovak Republic	488	(2.6)	5.2	(0.5)	0.6	(0.1)	466	(3.1)	5.4	(0.5)	492	(2.8)	8.6	(0.7)	2.4	(0.4)
	Spain	488	(2.6)	4.5	(0.4)	0.3	(0.1)	461	(2.2)	1.8	(0.2)	480	(2.3)	6.1	(0.4)	1.2	(0.2)
	Sweden	503	(2.4)	6.8	(0.5)	1.1	(0.2)	507	(3.4)	10.6	(0.8)	502	(2.4)	9.7	(0.6)	2.9	(0.4)
	Switzerland	512	(3.2)	9.1	(0.8)	1.4	(0.3)	499	(3.1)	7.7	(0.7)	530	(3.2)	15.9	(0.7)	6.8	(0.6)
	Turkey	424	(3.8)	0.9	(0.3)	0.0	a	447	(4.2)	2.1	(0.6)	424	(4.9)	3.0	(0.8)	1.2	(0.5)
	United Kingdom	515	(2.3)	10.9	(0.5)	2.9	(0.3)	495	(2.3)	9.0	(0.6)	495	(2.1)	8.7	(0.5)	2.5	(0.3)
	United States	489	(4.2)	7.5	(0.6)	1.5	(0.2)	m	m	m	m	474	(4.0)	6.4	(0.7)	1.3	(0.2)
	OECD average	*500*	*(0.5)*	*7.7*	*(0.1)*	*1.3*	*(0.0)*	*492*	*(0.6)*	*8.6*	*(0.1)*	*498*	*(0.5)*	*10.0*	*(0.1)*	*3.3*	*(0.1)*
Partner countries and economies	Argentina	391	(6.1)	0.4	(0.1)	0.0	a	374	(7.2)	0.9	(0.2)	381	(6.2)	0.9	(0.3)	0.1	(0.1)
	Azerbaijan	382	(2.8)	0.0	a	a	a	353	(3.1)	0.1	(0.1)	476	(2.3)	0.6	(0.3)	0.2	(0.1)
	Brazil	390	(2.8)	0.5	(0.2)	0.0	(0.0)	393	(3.7)	1.1	(0.3)	370	(2.9)	0.8	(0.3)	0.2	(0.1)
	Bulgaria	434	(6.1)	2.6	(0.5)	0.4	(0.2)	402	(6.9)	2.1	(0.5)	413	(6.1)	2.5	(0.6)	0.6	(0.3)
	Chile	438	(4.3)	1.8	(0.3)	0.1	(0.1)	442	(5.0)	3.5	(0.6)	411	(4.6)	1.3	(0.3)	0.1	(0.1)
	Colombia	388	(3.4)	0.2	(0.1)	0.0	a	385	(5.1)	0.6	(0.2)	370	(3.8)	0.4	(0.2)	0.0	(0.0)
	Croatia	493	(2.4)	4.6	(0.4)	0.5	(0.1)	477	(2.8)	3.7	(0.4)	467	(2.4)	4.0	(0.5)	0.8	(0.2)
	Estonia	531	(2.5)	10.1	(0.7)	1.4	(0.3)	501	(2.9)	6.0	(0.6)	515	(2.7)	10.0	(0.6)	2.6	(0.4)
	Hong Kong-China	542	(2.5)	13.9	(0.8)	2.1	(0.3)	536	(2.4)	12.8	(0.8)	547	(2.7)	18.7	(0.8)	9.0	(0.8)
	Indonesia	393	(5.7)	0.0	a	a	a	393	(5.9)	0.1	(0.0)	391	(5.6)	0.4	(0.2)	0.0	a
	Israel	454	(3.7)	4.4	(0.5)	0.8	(0.2)	439	(4.6)	5.0	(0.5)	442	(4.3)	4.8	(0.5)	1.3	(0.2)
	Jordan	422	(2.8)	0.6	(0.2)	0.0	a	401	(3.3)	0.2	(0.1)	384	(3.3)	0.2	(0.1)	0.0	a
	Kyrgyzstan	322	(2.9)	0.0	a	a	a	285	(3.5)	0.1	(0.1)	311	(3.4)	0.0	(0.1)	0.0	a
	Latvia	490	(3.0)	3.8	(0.4)	0.3	(0.1)	479	(3.7)	4.5	(0.5)	486	(3.0)	5.5	(0.5)	1.1	(0.3)
	Liechtenstein	522	(4.1)	10.0	(1.8)	2.2	(0.8)	510	(3.9)	9.8	(1.8)	525	(4.2)	12.6	(2.1)	5.8	(1.2)
	Lithuania	488	(2.8)	4.5	(0.6)	0.4	(0.2)	470	(3.0)	4.4	(0.5)	486	(2.9)	7.3	(0.8)	1.8	(0.4)
	Macao-China	511	(1.1)	5.0	(0.3)	0.3	(0.1)	492	(1.1)	3.0	(0.3)	525	(1.3)	13.6	(0.6)	3.8	(0.4)
	Montenegro	412	(1.1)	0.3	(0.1)	0.0	a	392	(1.2)	0.4	(0.2)	399	(1.4)	0.8	(0.2)	0.1	(0.1)
	Qatar	349	(0.9)	0.3	(0.1)	0.0	(0.0)	312	(1.2)	0.6	(0.1)	318	(1.0)	0.5	(0.1)	0.1	(0.0)
	Romania	418	(4.2)	0.5	(0.1)	0.0	a	396	(4.7)	0.3	(0.1)	415	(4.2)	1.1	(0.3)	0.1	(0.1)
	Russian Federation	479	(3.7)	3.7	(0.5)	0.5	(0.1)	440	(4.3)	1.7	(0.3)	476	(3.9)	5.7	(0.6)	1.7	(0.3)
	Serbia	436	(3.0)	0.8	(0.2)	0.0	a	401	(3.5)	0.3	(0.1)	435	(3.5)	2.4	(0.4)	0.4	(0.1)
	Slovenia	519	(1.1)	10.7	(0.6)	2.2	(0.3)	494	(1.0)	5.3	(0.5)	504	(1.0)	10.3	(0.8)	3.4	(0.4)
	Chinese Taipei	532	(3.6)	12.9	(0.8)	1.7	(0.2)	496	(3.4)	4.7	(0.6)	549	(4.1)	20.1	(0.9)	11.8	(0.8)
	Thailand	421	(2.1)	0.4	(0.1)	0.0	a	417	(2.6)	0.3	(0.1)	417	(2.3)	1.1	(0.2)	0.2	(0.1)
	Tunisia	386	(3.0)	0.1	(0.1)	0.0	a	380	(4.0)	0.2	(0.1)	365	(4.0)	0.5	(0.2)	0.0	a
	Uruguay	428	(2.7)	1.3	(0.2)	0.1	(0.1)	413	(3.4)	3.1	(0.4)	427	(2.6)	2.6	(0.4)	0.6	(0.2)

Source: OECD, *PISA 2006 Database.*
Please refer to the Reader's Guide for information on the abbreviations used in this table.
StatLink http://dx.doi.org/10.1787/664076271473

Table A4.1b.

Percentage of top performers in science, reading and mathematics, by gender

		Science						Reading						Mathematics					
		Females		Males		Difference in the percentages of top performers between females and males		Females		Males		Difference in the percentages of top performers between females and males		Females		Males		Difference in the percentages of top performers between females and males	
		%	S.E.	%	S.E.	Dif.	S.E.	%	S.E.	%	S.E.	Dif.	S.E.	%	S.E.	%	S.E.	Dif.	S.E.
OECD countries	Australia	13.6	(0.8)	15.6	(1.0)	-2.1	(1.3)	13.4	(0.8)	7.9	(0.8)	**5.5**	(1.2)	13.2	(0.8)	19.5	(1.3)	**-6.3**	(1.4)
	Austria	8.6	(0.9)	11.3	(1.0)	**-2.6**	(1.2)	12.4	(1.2)	5.7	(0.6)	**6.7**	(1.2)	12.0	(0.9)	19.4	(1.4)	**-7.4**	(1.4)
	Belgium	8.9	(0.7)	11.2	(0.7)	**-2.3**	(0.9)	14.1	(1.0)	8.7	(0.6)	**5.4**	(1.2)	19.5	(1.1)	24.9	(1.1)	**-5.4**	(1.5)
	Canada	13.2	(0.7)	15.7	(0.7)	**-2.5**	(0.9)	17.7	(1.0)	11.3	(0.8)	**6.5**	(1.1)	14.8	(0.9)	21.0	(1.0)	**-6.2**	(1.1)
	Czech Republic	11.2	(1.3)	11.9	(1.1)	-0.7	(1.4)	12.9	(1.3)	6.3	(0.7)	**6.6**	(1.3)	17.1	(1.8)	19.2	(1.3)	-2.0	(2.0)
	Denmark	5.8	(0.6)	7.8	(1.0)	**-2.0**	(1.0)	7.6	(0.8)	4.1	(0.7)	**3.5**	(0.9)	12.3	(1.0)	15.1	(1.0)	**-2.8**	(1.2)
	Finland	20.2	(1.0)	21.6	(1.1)	-1.4	(1.4)	23.7	(1.3)	9.6	(0.8)	**14.1**	(1.4)	21.1	(1.1)	27.8	(1.4)	**-6.7**	(1.4)
	France	6.5	(0.9)	9.6	(0.9)	**-3.2**	(1.2)	8.9	(0.9)	5.5	(0.8)	**3.3**	(0.9)	10.7	(1.0)	14.5	(1.2)	**-3.8**	(1.5)
	Germany	9.8	(0.8)	13.7	(1.1)	**-3.8**	(1.3)	12.9	(1.0)	7.0	(0.8)	**6.0**	(1.1)	12.0	(0.9)	18.7	(1.4)	**-6.6**	(1.4)
	Greece	2.8	(0.5)	4.0	(0.5)	-1.2	(0.7)	4.7	(0.7)	2.3	(0.4)	**2.4**	(0.7)	3.6	(0.6)	6.4	(0.7)	**-2.8**	(0.8)
	Hungary	5.2	(0.8)	8.4	(1.0)	**-3.3**	(1.2)	6.5	(0.8)	3.1	(0.5)	**3.4**	(0.8)	7.9	(1.0)	12.6	(1.2)	**-4.6**	(1.3)
	Iceland	6.0	(0.7)	6.6	(0.7)	-0.6	(1.0)	8.3	(0.8)	3.6	(0.6)	**4.7**	(0.9)	11.9	(1.0)	13.4	(0.9)	-1.5	(1.3)
	Ireland	8.5	(0.8)	10.3	(1.0)	-1.8	(1.1)	14.6	(1.1)	8.7	(1.0)	**5.9**	(1.4)	8.3	(1.0)	12.3	(1.1)	**-4.0**	(1.4)
	Italy	3.8	(0.4)	5.4	(0.5)	**-1.6**	(0.6)	6.7	(0.6)	3.7	(0.4)	**3.0**	(0.7)	4.1	(0.5)	8.4	(0.7)	**-4.3**	(0.7)
	Japan	13.1	(1.0)	17.0	(1.1)	**-3.8**	(1.6)	10.7	(1.2)	8.1	(1.0)	2.5	(1.7)	13.9	(1.3)	22.7	(1.5)	**-8.8**	(2.0)
	Korea	9.5	(1.1)	11.1	(1.4)	-1.6	(1.3)	27.3	(2.0)	16.3	(1.3)	**11.0**	(2.3)	24.2	(2.0)	29.9	(2.1)	**-5.7**	(2.6)
	Luxembourg	4.4	(0.5)	7.3	(0.6)	**-2.9**	(0.9)	7.1	(0.7)	4.2	(0.5)	**2.9**	(0.8)	7.9	(0.7)	13.2	(0.8)	**-5.3**	(1.0)
	Mexico	0.2	(0.1)	0.3	(0.1)	-0.1	(0.1)	0.8	(0.2)	0.3	(0.2)	**0.4**	(0.2)	0.5	(0.2)	1.2	(0.3)	**-0.6**	(0.3)
	Netherlands	11.2	(0.8)	15.0	(1.1)	**-3.7**	(1.1)	11.1	(0.8)	7.2	(0.8)	**3.9**	(0.9)	18.6	(1.2)	23.6	(1.3)	**-5.0**	(1.3)
	New Zealand	16.9	(1.1)	18.4	(1.1)	-1.5	(1.6)	19.1	(1.2)	12.4	(0.9)	**6.7**	(1.5)	16.1	(1.3)	21.9	(1.3)	**-5.8**	(1.8)
	Norway	5.5	(0.7)	6.7	(0.7)	-1.2	(1.0)	10.4	(1.0)	5.2	(0.7)	**5.2**	(1.2)	8.6	(0.9)	12.1	(1.0)	**-3.4**	(1.2)
	Poland	5.4	(0.6)	8.1	(0.7)	**-2.7**	(0.8)	14.5	(1.1)	8.7	(0.8)	**5.8**	(1.1)	8.6	(0.7)	12.6	(1.1)	**-4.0**	(1.1)
	Portugal	2.3	(0.3)	4.0	(0.6)	**-1.8**	(0.6)	5.7	(0.7)	3.5	(0.6)	**2.1**	(0.8)	3.7	(0.5)	7.9	(0.8)	**-4.2**	(0.9)
	Slovak Republic	4.8	(0.5)	6.7	(0.8)	**-2.0**	(0.9)	7.3	(0.8)	3.6	(0.5)	**3.7**	(0.8)	8.9	(1.2)	13.0	(1.2)	**-4.1**	(1.4)
	Spain	4.1	(0.5)	5.6	(0.5)	**-1.5**	(0.6)	2.4	(0.4)	1.1	(0.3)	**1.3**	(0.5)	5.4	(0.6)	9.0	(0.7)	**-3.7**	(0.7)
	Sweden	7.2	(0.8)	8.6	(0.7)	-1.4	(1.1)	14.5	(1.1)	7.0	(0.8)	**7.5**	(1.0)	11.6	(0.9)	13.5	(1.0)	-1.9	(1.3)
	Switzerland	9.8	(1.0)	11.1	(0.9)	-1.3	(0.9)	10.4	(1.0)	5.1	(0.6)	**5.3**	(0.9)	20.3	(1.5)	24.8	(1.2)	**-4.5**	(1.3)
	Turkey	0.9	(0.4)	0.9	(0.4)	0.0	(0.4)	2.9	(0.8)	1.4	(0.5)	**1.5**	(0.6)	3.2	(1.0)	5.0	(1.4)	**-1.7**	(0.7)
	United Kingdom	11.5	(0.8)	16.0	(0.9)	**-4.5**	(1.1)	10.6	(0.8)	7.5	(0.6)	**3.1**	(0.8)	8.4	(0.7)	13.9	(0.8)	**-5.6**	(1.0)
	United States	8.2	(0.9)	10.0	(1.0)	-1.7	(1.1)	m	m	m	m	m	m	6.6	(0.9)	8.6	(1.0)	**-1.9**	(0.9)
	OECD average	8.0	(0.1)	10.0	(0.2)	**-2.0**	(0.2)	11.0	(0.2)	6.2	(0.1)	**4.8**	(0.2)	11.2	(0.2)	15.5	(0.2)	**-4.4**	(0.2)
Partner countries and economies	Argentina	0.5	(0.2)	0.4	(0.2)	0.0	(0.3)	1.3	(0.4)	0.6	(0.3)	0.7	(0.5)	1.1	(0.6)	1.0	(0.3)	0.1	(0.6)
	Azerbaijan	a	a	0.0	(0.0)	0.0	(0.0)	0.1	(0.0)	0.2	(0.1)	-0.2	(0.1)	0.9	(0.3)	0.9	(0.4)	0.0	(0.5)
	Brazil	0.4	(0.2)	0.8	(0.3)	-0.4	(0.3)	1.3	(0.4)	0.9	(0.3)	0.4	(0.4)	0.7	(0.3)	1.4	(0.5)	-0.7	(0.4)
	Bulgaria	2.8	(0.6)	3.3	(0.8)	-0.6	(0.6)	2.9	(0.7)	1.3	(0.4)	**1.6**	(0.6)	2.4	(0.7)	3.7	(1.0)	**-1.3**	(0.6)
	Chile	1.3	(0.5)	2.4	(0.6)	-1.1	(0.8)	3.7	(0.7)	3.4	(0.8)	0.3	(0.9)	0.5	(0.2)	2.3	(0.7)	**-1.7**	(0.8)
	Colombia	0.1	(0.1)	0.2	(0.1)	-0.1	(0.2)	0.8	(0.4)	0.4	(0.2)	0.4	(0.4)	0.3	(0.2)	0.6	(0.3)	-0.3	(0.2)
	Croatia	4.8	(0.6)	5.4	(0.5)	-0.7	(0.7)	5.6	(0.8)	1.9	(0.4)	**3.7**	(0.9)	3.0	(0.5)	6.4	(0.7)	**-3.4**	(0.7)
	Estonia	11.2	(1.0)	11.8	(1.0)	-0.6	(1.2)	9.2	(1.1)	3.0	(0.4)	**6.2**	(1.1)	11.1	(1.0)	13.9	(1.1)	**-2.9**	(1.2)
	Hong Kong-China	14.3	(1.2)	17.6	(1.3)	-3.2	(1.7)	16.8	(1.4)	8.8	(1.1)	**8.0**	(1.9)	24.6	(1.8)	30.9	(1.6)	**-6.4**	(2.5)
	Indonesia	0.0	(0.0)	0.1	(0.0)	0.0	(0.1)	0.1	(0.1)	0.0	(0.0)	0.1	(0.1)	0.2	(0.1)	0.6	(0.3)	-0.4	(0.3)
	Israel	3.9	(0.5)	6.6	(0.9)	**-2.8**	(0.9)	5.4	(0.7)	4.6	(0.7)	0.8	(0.9)	4.2	(0.6)	7.9	(0.8)	-3.7	(0.9)
	Jordan	0.7	(0.2)	0.6	(0.3)	0.1	(0.3)	0.3	(0.1)	0.1	(0.1)	0.2	(0.1)	0.1	(0.1)	0.3	(0.2)	-0.2	(0.3)
	Kyrgyzstan	0.0	(0.0)	0.0	(0.1)	0.0	(0.0)	0.1	(0.1)	0.1	(0.1)	0.1	(0.1)	0.1	(0.0)	0.1	(0.1)	0.0	(0.1)
	Latvia	3.9	(0.5)	4.3	(0.6)	-0.5	(0.7)	6.5	(0.8)	2.5	(0.5)	**4.1**	(0.9)	5.6	(0.7)	7.6	(0.9)	-2.1	(1.1)
	Liechtenstein	12.3	(2.5)	12.2	(2.6)	0.1	(3.8)	14.4	(3.3)	4.6	(2.1)	**9.8**	(4.3)	19.2	(2.9)	17.7	(3.1)	1.5	(4.5)
	Lithuania	5.4	(0.8)	4.6	(0.7)	0.8	(0.7)	6.5	(0.8)	2.3	(0.4)	**4.2**	(0.8)	8.3	(1.0)	9.8	(1.0)	-1.5	(1.0)
	Macao-China	4.0	(0.5)	6.6	(0.6)	**-2.5**	(0.8)	3.7	(0.5)	2.4	(0.4)	1.3	(0.8)	14.2	(0.9)	20.6	(1.1)	**-6.4**	(1.5)
	Montenegro	0.2	(0.2)	0.3	(0.2)	-0.1	(0.2)	0.7	(0.3)	0.2	(0.1)	0.5	(0.3)	0.7	(0.3)	0.9	(0.3)	-0.2	(0.5)
	Qatar	0.2	(0.1)	0.4	(0.1)	-0.2	(0.2)	0.6	(0.1)	0.5	(0.2)	0.1	(0.2)	0.3	(0.1)	0.9	(0.2)	**-0.6**	(0.2)
	Romania	0.2	(0.1)	0.7	(0.3)	-0.5	(0.3)	0.5	(0.2)	0.1	(0.1)	0.3	(0.2)	0.7	(0.3)	1.8	(0.5)	**-1.1**	(0.5)
	Russian Federation	3.4	(0.5)	5.1	(0.7)	**-1.7**	(0.7)	2.3	(0.4)	1.1	(0.3)	**1.2**	(0.5)	6.3	(0.9)	8.6	(0.9)	**-2.3**	(0.8)
	Serbia	0.6	(0.2)	1.0	(0.3)	-0.5	(0.3)	0.4	(0.2)	0.2	(0.1)	0.2	(0.3)	2.0	(0.5)	3.7	(0.6)	**-1.7**	(0.7)
	Slovenia	13.1	(1.0)	12.7	(1.0)	0.5	(1.6)	7.8	(0.9)	2.7	(0.5)	**5.0**	(1.1)	12.5	(0.8)	14.8	(1.0)	-2.3	(1.3)
	Chinese Taipei	13.4	(1.3)	15.8	(1.3)	-2.4	(2.0)	6.1	(1.0)	3.5	(0.6)	**2.6**	(1.2)	28.8	(2.1)	34.7	(1.7)	**-5.9**	(2.6)
	Thailand	0.4	(0.1)	0.5	(0.2)	-0.1	(0.3)	0.4	(0.2)	0.1	(0.1)	0.3	(0.2)	1.1	(0.3)	1.6	(0.4)	-0.5	(0.5)
	Tunisia	0.1	(0.1)	0.1	(0.1)	0.0	(0.2)	0.2	(0.1)	0.1	(0.1)	0.0	(0.1)	0.3	(0.2)	0.7	(0.4)	-0.4	(0.4)
	Uruguay	1.0	(0.3)	1.9	(0.4)	-0.9	(0.5)	3.7	(0.5)	2.4	(0.5)	**1.3**	(0.6)	2.1	(0.5)	4.3	(0.6)	**-2.1**	(0.6)

Note: Values that are statistically significant are indicated in bold.
Source: OECD, *PISA 2006 Database.*
Please refer to the Reader's Guide for information on the abbreviations used in this table.
StatLink http://dx.doi.org/10.1787/664076271473

Table A4.2a.

Overlapping of top performers in science, reading and mathematics

		15-year-old students who are:																			
		not top performers in any of the three domains		top performers only in science		top performers only in reading		top performers only in mathematics		top performers in science and reading but not in mathematics		top performers in science and mathematics but not in reading		top performers in reading and mathematics but not in science		top performers in all three domains		Percentage of top performers in science, who are top performers in reading and mathematics as well	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD countries	Australia	78.0	(0.8)	2.8	(0.2)	1.6	(0.2)	4.5	(0.4)	1.2	(0.2)	4.0	(0.3)	1.2	(0.1)	6.6	(0.4)	45.4	(1.8)
	Austria	79.7	(1.2)	1.1	(0.3)	2.3	(0.3)	6.7	(0.6)	1.1	(0.3)	3.4	(0.4)	1.2	(0.3)	4.4	(0.4)	44.1	(3.2)
	Belgium	74.4	(0.8)	0.6	(0.2)	2.2	(0.2)	10.6	(0.6)	0.5	(0.1)	3.2	(0.3)	2.8	(0.3)	5.8	(0.4)	57.5	(2.4)
	Canada	74.3	(0.8)	2.5	(0.3)	3.6	(0.4)	5.6	(0.4)	1.7	(0.2)	3.2	(0.3)	2.1	(0.3)	7.0	(0.4)	48.8	(2.1)
	Czech Republic	78.2	(1.2)	1.2	(0.2)	1.6	(0.2)	7.1	(0.6)	0.6	(0.2)	4.2	(0.5)	1.4	(0.3)	5.5	(0.6)	47.4	(3.2)
	Denmark	84.0	(0.8)	0.6	(0.2)	1.2	(0.3)	6.7	(0.5)	0.4	(0.1)	2.8	(0.5)	1.3	(0.3)	3.0	(0.5)	43.7	(5.2)
	Finland	67.2	(1.0)	2.9	(0.3)	3.3	(0.4)	6.9	(0.6)	2.1	(0.3)	6.3	(0.5)	1.7	(0.3)	9.5	(0.5)	45.6	(2.0)
	France	82.7	(1.0)	1.3	(0.2)	2.7	(0.5)	5.6	(0.5)	0.8	(0.2)	3.1	(0.4)	0.9	(0.2)	2.8	(0.4)	35.3	(3.8)
	Germany	79.6	(1.1)	1.8	(0.2)	2.3	(0.4)	4.9	(0.6)	0.9	(0.2)	3.9	(0.4)	1.4	(0.3)	5.2	(0.5)	44.2	(3.1)
	Greece	91.8	(0.6)	1.0	(0.2)	1.6	(0.3)	2.8	(0.3)	0.5	(0.2)	1.0	(0.2)	0.4	(0.1)	0.9	(0.2)	25.9	(5.2)
	Hungary	86.9	(1.0)	1.1	(0.2)	1.1	(0.3)	4.3	(0.5)	0.4	(0.2)	2.9	(0.4)	0.7	(0.2)	2.4	(0.4)	35.2	(3.8)
	Iceland	84.6	(0.7)	0.9	(0.2)	1.5	(0.3)	6.3	(0.4)	0.4	(0.2)	2.3	(0.4)	1.3	(0.3)	2.8	(0.3)	44.4	(4.9)
	Ireland	82.7	(0.9)	1.5	(0.3)	3.9	(0.5)	2.7	(0.4)	1.7	(0.3)	1.5	(0.3)	1.3	(0.2)	4.8	(0.5)	50.5	(3.8)
	Italy	89.3	(0.6)	1.2	(0.1)	2.7	(0.3)	2.8	(0.3)	0.6	(0.1)	1.5	(0.2)	0.6	(0.1)	1.3	(0.2)	27.4	(2.7)
	Japan	76.0	(1.1)	3.0	(0.3)	1.5	(0.3)	6.3	(0.6)	1.2	(0.2)	5.3	(0.5)	1.1	(0.2)	5.5	(0.5)	36.8	(2.2)
	Korea	66.4	(1.5)	0.2	(0.1)	5.7	(0.6)	10.0	(0.8)	0.6	(0.2)	1.7	(0.4)	7.6	(0.7)	7.8	(0.8)	75.8	(3.2)
	Luxembourg	86.6	(0.6)	0.7	(0.1)	1.5	(0.2)	5.0	(0.4)	0.6	(0.1)	2.1	(0.3)	1.0	(0.2)	2.5	(0.3)	42.4	(4.0)
	Mexico	98.6	(0.2)	0.1	(0.1)	0.4	(0.1)	0.6	(0.2)	0.0	(0.0)	0.1	(0.0)	0.1	(0.0)	0.0	(0.0)	c	c
	Netherlands	75.8	(1.0)	1.3	(0.3)	1.2	(0.3)	8.3	(0.8)	0.5	(0.2)	5.5	(0.5)	1.6	(0.3)	5.8	(0.5)	44.0	(3.1)
	New Zealand	73.2	(1.0)	2.2	(0.3)	3.5	(0.4)	4.5	(0.4)	2.2	(0.3)	4.2	(0.5)	1.2	(0.3)	8.9	(0.6)	50.8	(2.7)
	Norway	85.1	(0.9)	0.8	(0.2)	2.9	(0.5)	4.5	(0.5)	0.7	(0.2)	1.8	(0.3)	1.3	(0.3)	2.7	(0.3)	45.1	(3.6)
	Poland	82.6	(0.9)	0.8	(0.2)	5.1	(0.4)	3.6	(0.4)	0.9	(0.2)	1.4	(0.3)	1.9	(0.3)	3.7	(0.4)	54.1	(4.3)
	Portugal	91.5	(0.6)	0.4	(0.1)	2.1	(0.3)	2.6	(0.3)	0.4	(0.1)	0.9	(0.2)	0.8	(0.2)	1.5	(0.2)	46.4	(4.8)
	Slovak Republic	86.2	(0.9)	0.8	(0.2)	1.6	(0.3)	5.4	(0.7)	0.5	(0.1)	2.2	(0.3)	1.0	(0.2)	2.3	(0.3)	40.6	(3.5)
	Spain	90.5	(0.6)	1.5	(0.2)	0.6	(0.1)	3.8	(0.3)	0.2	(0.1)	2.4	(0.3)	0.3	(0.1)	0.8	(0.2)	15.6	(2.8)
	Sweden	81.9	(1.0)	0.9	(0.3)	3.8	(0.5)	4.5	(0.6)	0.8	(0.2)	2.1	(0.4)	1.9	(0.4)	4.1	(0.3)	51.8	(3.4)
	Switzerland	75.5	(1.2)	0.7	(0.1)	0.9	(0.2)	11.7	(0.6)	0.3	(0.1)	4.4	(0.4)	1.5	(0.2)	5.0	(0.5)	48.0	(2.8)
	Turkey	94.6	(1.3)	0.1	(0.1)	1.1	(0.3)	2.8	(0.8)	0.1	(0.0)	0.4	(0.2)	0.6	(0.3)	0.4	(0.2)	c	c
	United Kingdom	81.8	(0.7)	3.5	(0.3)	1.7	(0.2)	2.2	(0.3)	1.9	(0.3)	3.4	(0.4)	0.5	(0.1)	4.9	(0.3)	35.9	(1.9)
	United States	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average	*82.1*	*(0.2)*	*1.3*	*(0.0)*	*2.3*	*(0.1)*	*5.3*	*(0.1)*	*0.8*	*(0.0)*	*2.8*	*(0.1)*	*1.4*	*(0.1)*	*4.1*	*(0.1)*	*44.1*	*(0.7)*
Partner countries and economies	Argentina	98.1	(0.4)	0.2	(0.1)	0.7	(0.2)	0.7	(0.3)	0.1	(0.0)	0.2	(0.1)	0.1	(0.1)	0.1	(0.1)	c	c
	Azerbaijan	99.0	(0.3)	a	a	0.1	(0.1)	0.9	(0.3)	a	a	0.0	(0.0)	0.0	(0.0)	a	a	c	c
	Brazil	98.1	(0.4)	0.1	(0.1)	0.7	(0.2)	0.4	(0.1)	0.1	(0.0)	0.2	(0.1)	0.2	(0.1)	0.2	(0.1)	c	c
	Bulgaria	94.4	(1.0)	1.1	(0.3)	0.9	(0.3)	1.4	(0.4)	0.4	(0.2)	1.0	(0.3)	0.2	(0.1)	0.6	(0.2)	18.3	(5.7)
	Chile	94.9	(0.8)	0.8	(0.2)	2.4	(0.5)	0.5	(0.2)	0.4	(0.2)	0.3	(0.1)	0.3	(0.1)	0.4	(0.1)	c	c
	Colombia	99.0	(0.4)	0.1	(0.0)	0.5	(0.2)	0.3	(0.2)	0.0	(0.0)	0.1	(0.0)	0.0	(0.0)	0.0	(0.0)	c	c
	Croatia	91.7	(0.7)	1.4	(0.2)	1.4	(0.3)	1.6	(0.3)	0.8	(0.2)	1.6	(0.2)	0.2	(0.1)	1.3	(0.2)	26.4	(3.8)
	Estonia	83.3	(1.0)	2.5	(0.4)	1.0	(0.3)	3.8	(0.4)	0.7	(0.2)	4.4	(0.4)	0.4	(0.2)	3.9	(0.5)	34.0	(3.2)
	Hong Kong-China	68.5	(1.1)	1.1	(0.3)	2.2	(0.3)	10.9	(0.6)	0.5	(0.1)	6.6	(0.5)	2.5	(0.4)	7.7	(0.6)	48.3	(2.3)
	Indonesia	99.6	(0.2)	a	a	0.0	(0.0)	0.4	(0.2)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	a	a	c	(0.0)
	Israel	89.6	(0.9)	1.6	(0.4)	1.8	(0.3)	2.7	(0.4)	0.9	(0.2)	1.1	(0.2)	0.6	(0.3)	1.7	(0.2)	31.7	(3.9)
	Jordan	99.1	(0.2)	0.5	(0.2)	0.2	(0.1)	0.1	(0.1)	0.1	(0.0)	0.1	(0.1)	0.0	(0.0)	0.0	(0.0)	c	c
	Kyrgyzstan	99.9	(0.1)	0.0	(0.0)	0.1	(0.1)	0.0	(0.0)	a	a	0.0	(0.0)	0.0	(0.0)	a	a	c	c
	Latvia	90.3	(0.8)	0.8	(0.2)	1.9	(0.3)	3.0	(0.3)	0.4	(0.2)	1.4	(0.3)	0.8	(0.2)	1.5	(0.2)	35.8	(5.6)
	Liechtenstein	79.2	(2.1)	1.0	(0.6)	1.1	(0.8)	6.5	(1.6)	0.5	(0.5)	3.7	(1.3)	1.1	(0.7)	7.2	(1.4)	59.4	(11.2)
	Lithuania	88.5	(0.9)	0.7	(0.2)	1.4	(0.3)	4.5	(0.5)	0.3	(0.1)	2.0	(0.4)	0.6	(0.2)	2.0	(0.3)	40.8	(4.9)
	Macao-China	81.2	(0.7)	0.5	(0.2)	0.8	(0.2)	11.9	(0.8)	0.1	(0.0)	3.4	(0.4)	0.8	(0.2)	1.3	(0.2)	24.2	(3.6)
	Montenegro	98.8	(0.2)	0.0	(0.0)	0.2	(0.1)	0.6	(0.2)	0.1	(0.1)	0.1	(0.0)	0.1	(0.1)	0.1	(0.1)	c	c
	Qatar	99.0	(0.1)	0.1	(0.0)	0.3	(0.1)	0.3	(0.1)	0.1	(0.1)	0.1	(0.0)	0.1	(0.1)	0.1	(0.1)	c	c
	Romania	98.3	(0.4)	0.1	(0.1)	0.2	(0.1)	0.9	(0.2)	0.0	(0.0)	0.3	(0.1)	0.0	(0.0)	0.0	(0.0)	c	c
	Russian Federation	90.6	(0.9)	1.2	(0.3)	0.6	(0.1)	4.4	(0.6)	0.2	(0.1)	2.2	(0.3)	0.3	(0.1)	0.6	(0.1)	15.3	(3.4)
	Serbia	96.8	(0.4)	0.2	(0.1)	0.1	(0.1)	2.2	(0.4)	0.0	(0.0)	0.5	(0.2)	0.1	(0.0)	0.1	(0.0)	c	c
	Slovenia	81.9	(0.6)	2.8	(0.3)	0.6	(0.2)	4.3	(0.5)	1.0	(0.2)	5.8	(0.5)	0.3	(0.1)	3.3	(0.4)	25.7	(2.8)
	Chinese Taipei	67.0	(1.4)	0.8	(0.2)	0.2	(0.1)	17.7	(0.9)	0.1	(0.1)	9.8	(0.6)	0.5	(0.1)	3.9	(0.5)	26.9	(2.4)
	Thailand	98.4	(0.3)	0.1	(0.1)	0.2	(0.1)	1.0	(0.2)	0.0	(0.0)	0.2	(0.1)	0.0	(0.0)	0.1	(0.1)	c	c
	Tunisia	99.3	(0.3)	0.1	(0.0)	0.1	(0.1)	0.4	(0.2)	0.0	(0.0)	0.1	(0.0)	0.0	(0.0)	0.0	(0.0)	c	c
	Uruguay	94.2	(0.5)	0.4	(0.1)	2.0	(0.4)	2.0	(0.3)	0.3	(0.1)	0.4	(0.1)	0.4	(0.1)	0.4	(0.1)	c	c

Source: OECD, *PISA 2006 Database.*

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Table A4.2b.
Overlapping of top performers in science, reading and mathematics, by gender

		Females who are:																Percentage of female top performers in science, who are top performers in reading and mathematics as well	
		not top performers in any of the three domains		top performers only in science		top performers only in reading		top performers only in mathematics		top performers in science and reading but not in mathematics		top performers in science and mathematics but not in reading		top performers in reading and mathematics but not in science		top performers in all three domains			
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD countries	Australia	79.1	(0.9)	2.7	(0.4)	3.0	(0.4)	2.7	(0.4)	2.0	(0.3)	2.0	(0.3)	1.6	(0.2)	6.9	(0.5)	50.8	(2.9)
	Austria	81.0	(1.4)	0.9	(0.4)	4.3	(0.7)	4.2	(0.6)	1.7	(0.4)	1.4	(0.3)	1.8	(0.4)	4.6	(0.4)	53.6	(4.8)
	Belgium	75.6	(1.2)	0.5	(0.2)	3.7	(0.5)	8.1	(0.7)	0.7	(0.2)	1.7	(0.3)	3.7	(0.4)	6.0	(0.6)	67.4	(3.5)
	Canada	74.9	(1.0)	2.0	(0.4)	5.8	(0.8)	3.6	(0.4)	2.5	(0.4)	1.7	(0.2)	2.6	(0.3)	6.9	(0.5)	52.7	(2.9)
	Czech Republic	77.6	(1.8)	1.1	(0.3)	3.1	(0.5)	5.9	(0.9)	1.0	(0.3)	2.5	(0.5)	2.2	(0.5)	6.5	(0.9)	58.3	(3.7)
	Denmark	84.8	(1.0)	0.4	(0.2)	2.0	(0.4)	5.5	(0.8)	0.5	(0.2)	1.6	(0.4)	1.8	(0.5)	3.3	(0.5)	57.3	(6.2)
	Finland	66.7	(1.3)	2.5	(0.4)	6.1	(0.8)	4.4	(0.7)	3.6	(0.5)	2.8	(0.4)	2.6	(0.4)	11.4	(0.8)	56.2	(2.8)
	France	83.4	(1.2)	0.9	(0.2)	4.2	(0.8)	4.7	(0.6)	0.8	(0.4)	2.1	(0.4)	1.1	(0.3)	2.7	(0.6)	42.2	(6.5)
	Germany	81.2	(1.1)	1.3	(0.4)	4.2	(0.6)	2.8	(0.5)	1.3	(0.3)	1.7	(0.3)	1.9	(0.6)	5.5	(0.6)	55.8	(4.6)
	Greece	92.2	(0.8)	0.8	(0.3)	2.6	(0.4)	1.8	(0.4)	0.7	(0.3)	0.5	(0.2)	0.5	(0.2)	0.8	(0.2)	28.8	(7.8)
	Hungary	88.6	(1.2)	0.7	(0.3)	2.1	(0.4)	2.9	(0.4)	0.7	(0.3)	1.2	(0.4)	1.1	(0.3)	2.6	(0.5)	50.4	(7.1)
	Iceland	84.2	(1.1)	1.2	(0.4)	2.5	(0.5)	5.3	(0.6)	0.6	(0.3)	1.4	(0.5)	2.0	(0.6)	1.2	(0.3)	53.4	(9.0)
	Ireland	82.2	(1.2)	0.8	(0.4)	6.2	(0.8)	1.4	(0.5)	2.3	(0.5)	0.7	(0.3)	1.7	(0.4)	3.2	(0.5)	52.5	(6.2)
	Italy	90.0	(0.7)	0.5	(0.2)	4.0	(0.4)	1.6	(0.3)	0.9	(0.2)	0.7	(0.2)	0.6	(0.1)	0.1	(0.1)	30.0	(4.8)
	Japan	79.0	(1.6)	2.9	(0.4)	2.5	(0.5)	4.2	(0.7)	1.8	(0.3)	3.2	(0.5)	1.2	(0.3)	5.3	(0.7)	40.0	(3.4)
	Korea	65.8	(2.1)	0.1	(0.1)	9.1	(1.1)	6.2	(0.8)	0.8	(0.3)	0.5	(0.2)	9.4	(1.1)	8.1	(1.1)	84.7	(4.4)
	Luxembourg	88.1	(0.7)	0.6	(0.2)	2.7	(0.4)	3.4	(0.6)	0.7	(0.2)	0.8	(0.2)	1.4	(0.3)	2.3	(0.4)	52.2	(5.9)
	Mexico	98.7	(0.3)	0.1	(0.1)	0.6	(0.1)	0.4	(0.1)	0.0	(0.0)	0.1	(0.1)	0.1	(0.0)	0.0	(0.0)	17.3	(16.2)
	Netherlands	77.3	(1.1)	1.2	(0.4)	2.2	(0.5)	7.1	(0.9)	0.7	(0.2)	3.3	(0.6)	2.2	(0.4)	6.0	(0.6)	53.1	(4.2)
	New Zealand	72.9	(1.5)	2.2	(0.5)	5.5	(0.6)	3.2	(0.6)	3.3	(0.5)	2.6	(0.6)	1.6	(0.4)	8.8	(0.7)	52.0	(3.2)
	Norway	84.9	(1.0)	0.6	(0.2)	4.8	(0.9)	3.0	(0.6)	1.0	(0.3)	1.1	(0.4)	1.8	(0.6)	2.8	(0.6)	50.6	(6.8)
	Poland	82.1	(1.2)	0.4	(0.2)	7.7	(0.7)	2.4	(0.4)	1.2	(0.4)	0.6	(0.2)	2.3	(0.4)	3.3	(0.4)	60.1	(5.5)
	Portugal	92.3	(0.8)	0.3	(0.1)	3.2	(0.5)	1.4	(0.4)	0.5	(0.2)	0.3	(0.2)	0.8	(0.3)	1.2	(0.2)	51.8	(8.4)
	Slovak Republic	87.3	(1.1)	0.5	(0.2)	2.7	(0.6)	3.9	(0.8)	0.7	(0.2)	1.1	(0.2)	1.4	(0.4)	2.5	(0.4)	52.8	(5.6)
	Spain	92.0	(0.7)	1.4	(0.3)	0.9	(0.2)	2.6	(0.3)	0.3	(0.1)	1.6	(0.3)	0.3	(0.1)	0.8	(0.2)	20.5	(4.8)
	Sweden	80.6	(1.3)	0.6	(0.3)	6.1	(0.8)	3.4	(0.8)	1.1	(0.3)	0.9	(0.3)	2.7	(0.6)	4.6	(0.5)	64.5	(5.3)
	Switzerland	77.0	(1.5)	0.6	(0.2)	1.6	(0.3)	9.3	(0.7)	0.5	(0.2)	2.7	(0.4)	2.4	(0.4)	6.0	(0.7)	61.5	(4.4)
	Turkey	94.9	(1.3)	0.1	(0.1)	1.7	(0.6)	1.7	(0.6)	0.1	(0.1)	0.4	(0.2)	0.8	(0.4)	0.4	(0.2)	42.8	(14.3)
	United Kingdom	83.8	(0.9)	2.6	(0.4)	2.6	(0.3)	1.4	(0.3)	2.7	(0.4)	1.6	(0.3)	0.7	(0.2)	4.6	(0.5)	40.3	(3.5)
	United States	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average	*82.7*	*(0.2)*	*1.1*	*(0.1)*	*3.7*	*(0.1)*	*3.7*	*(0.1)*	*1.2*	*(0.1)*	*1.5*	*(0.1)*	*1.9*	*(0.1)*	*4.1*	*(0.1)*	*50.1*	*(1.2)*
Partner countries and economies	Argentina	97.7	(0.7)	0.1	(0.1)	1.0	(0.3)	0.7	(0.5)	0.0	(0.0)	0.2	(0.2)	0.1	(0.2)	0.1	(0.1)	17.1	(21.0)
	Azerbaijan	99.1	(0.3)	a	a	0.0	(0.0)	0.8	(0.3)	a	a	a	a	0.1	(0.0)	a	a	a	a
	Brazil	98.2	(0.4)	0.1	(0.1)	1.0	(0.3)	0.3	(0.1)	0.1	(0.1)	0.1	(0.1)	0.2	(0.1)	0.2	(0.1)	41.3	(18.0)
	Bulgaria	94.5	(1.1)	1.0	(0.4)	1.6	(0.5)	1.0	(0.4)	0.5	(0.3)	0.7	(0.3)	0.2	(0.1)	0.5	(0.2)	19.4	(5.2)
	Chile	95.5	(0.9)	0.6	(0.3)	2.9	(0.6)	0.1	(0.1)	0.5	(0.3)	0.1	(0.1)	0.2	(0.1)	0.2	(0.1)	13.7	(7.8)
	Colombia	99.0	(0.5)	0.1	(0.1)	0.7	(0.4)	0.2	(0.1)	0.0	(0.0)	0.0	(0.0)	0.1	(0.1)	0.0	(0.0)	29.9	(46.6)
	Croatia	91.8	(0.9)	1.3	(0.3)	2.5	(0.5)	0.7	(0.3)	1.4	(0.4)	0.6	(0.3)	0.3	(0.2)	1.4	(0.3)	30.2	(6.8)
	Estonia	83.4	(1.3)	2.3	(0.4)	2.0	(0.5)	2.6	(0.4)	1.2	(0.3)	2.4	(0.5)	0.8	(0.4)	5.2	(0.8)	46.5	(4.9)
	Hong Kong-China	70.1	(1.9)	1.0	(0.4)	3.6	(0.5)	8.4	(1.1)	0.7	(0.3)	3.7	(0.5)	3.6	(0.8)	8.9	(0.9)	61.9	(3.7)
	Indonesia	99.7	(0.2)	1.1	(0.3)	0.1	(0.1)	0.2	(0.1)	0.0	(0.0)	a	a	0.0	(0.0)	4.5	(0.7)	0.0	(0.0)
	Israel	91.0	(1.1)	1.0	(0.2)	2.5	(0.6)	1.9	(0.4)	1.0	(0.2)	0.5	(0.2)	0.7	(0.3)	1.1	(0.2)	30.7	(6.7)
	Jordan	99.0	(0.2)	a	a	0.2	(0.1)	0.0	(0.0)	0.1	(0.1)	0.1	(0.1)	0.0	(0.0)	a	a	4.6	(9.5)
	Kyrgyzstan	99.9	(0.1)	a	a	0.1	(0.1)	0.0	(0.0)	a	a	0.0	(0.0)	0.0	(0.0)	a	a	0.0	(0.0)
	Latvia	90.0	(1.0)	0.8	(0.3)	3.0	(0.5)	2.0	(0.5)	0.6	(0.2)	0.7	(0.2)	1.2	(0.3)	1.7	(0.4)	43.5	(7.1)
	Liechtenstein	77.5	(3.2)	0.8	(0.7)	2.0	(1.5)	6.3	(2.0)	0.8	(0.8)	1.2	(0.9)	2.0	(1.4)	9.7	(2.4)	78.8	(11.7)
	Lithuania	88.0	(1.1)	0.8	(0.3)	2.4	(0.6)	3.2	(0.7)	0.4	(0.2)	1.5	(0.4)	1.0	(0.4)	2.7	(0.5)	49.9	(5.1)
	Macao-China	83.8	(0.9)	0.6	(0.3)	1.3	(0.3)	9.8	(1.1)	0.1	(0.1)	2.2	(0.4)	1.1	(0.2)	1.1	(0.3)	28.2	(6.6)
	Montenegro	98.7	(0.3)	0.0	(0.0)	0.4	(0.2)	0.5	(0.2)	0.2	(0.2)	0.1	(0.1)	0.1	(0.1)	0.1	(0.1)	40.4	(35.8)
	Qatar	99.1	(0.2)	0.1	(0.1)	0.4	(0.1)	0.2	(0.1)	0.1	(0.1)	0.0	(0.0)	0.1	(0.1)	0.1	(0.1)	35.0	(20.8)
	Romania	98.8	(0.4)	0.1	(0.1)	0.4	(0.2)	0.6	(0.3)	0.1	(0.0)	0.1	(0.1)	0.1	(0.1)	0.0	(0.0)	3.4	(10.2)
	Russian Federation	91.5	(0.9)	0.9	(0.2)	1.0	(0.2)	3.8	(0.6)	0.2	(0.1)	1.5	(0.4)	0.3	(0.1)	0.7	(0.2)	21.5	(5.5)
	Serbia	97.5	(0.5)	0.2	(0.1)	0.2	(0.1)	1.6	(0.5)	0.1	(0.1)	0.2	(0.1)	0.1	(0.1)	0.1	(0.1)	9.2	(11.2)
	Slovenia	81.7	(1.0)	2.8	(0.4)	1.1	(0.4)	3.5	(0.7)	1.9	(0.4)	4.2	(0.6)	0.5	(0.2)	4.3	(0.6)	32.5	(3.9)
	Chinese Taipei	70.0	(2.1)	0.8	(0.2)	0.3	(0.1)	15.6	(1.2)	0.2	(0.1)	7.6	(0.8)	0.8	(0.3)	4.8	(0.8)	36.1	(4.0)
	Thailand	98.5	(0.3)	0.1	(0.1)	0.2	(0.1)	0.9	(0.3)	0.0	(0.0)	0.1	(0.1)	0.1	(0.1)	0.1	(0.1)	19.8	(14.6)
	Tunisia	99.5	(0.3)	0.1	(0.1)	0.1	(0.1)	0.2	(0.2)	0.0	(0.0)	0.1	(0.1)	0.0	(0.0)	a	a	0.0	(0.0)
	Uruguay	94.6	(0.6)	0.3	(0.3)	2.7	(0.5)	1.2	(0.4)	0.3	(0.2)	0.1	(0.1)	0.5	(0.2)	0.3	(0.1)	28.2	(15.0)

Source: OECD, *PISA 2006 Database.*
StatLink http://dx.doi.org/10.1787/664076271473

Table A4.2b. *(continued)*

Overlapping of top performers in science, reading and mathematics, by gender

	Males who are:																		Percentage of male top performers in science, who are top performers in reading and mathematics as well	
	not top performers in any of the three domains		top performers only in science		top performers only in reading		top performers only in mathematics		top performers in science and reading but not in mathematics		top performers in science and mathematics but not in reading		top performers in reading and mathematics but not in science		top performers in all three domains)			
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD countries																				
Australia	76.9	(1.3)	2.8	(0.3)	0.3	(0.1)	6.3	(0.6)	0.4	(0.1)	6.0	(0.4)	0.8	(0.2)	6.4	(0.7)	41.0	(2.7)
Austria	78.5	(1.5)	1.3	(0.3)	0.4	(0.1)	9.2	(0.9)	0.4	(0.2)	5.3	(0.8)	0.7	(0.3)	4.2	(0.5)	37.1	(4.1)
Belgium	73.3	(1.1)	0.6	(0.2)	0.9	(0.2)	12.8	(0.8)	0.3	(0.1)	4.6	(0.4)	1.9	(0.3)	5.6	(0.4)	50.4	(3.3)
Canada	73.7	(1.0)	2.9	(0.4)	1.5	(0.2)	7.5	(0.6)	1.0	(0.3)	4.7	(0.5)	1.7	(0.4)	7.1	(0.5)	45.5	(2.5)
Czech Republic	78.7	(1.4)	1.3	(0.4)	0.5	(0.3)	8.1	(0.7)	0.3	(0.2)	5.6	(0.7)	0.8	(0.3)	4.7	(0.6)	39.5	(3.7)
Denmark	83.2	(1.1)	0.8	(0.4)	0.5	(0.3)	7.9	(0.7)	0.4	(0.2)	4.0	(0.8)	0.7	(0.3)	2.6	(0.7)	33.4	(7.2)
Finland	67.7	(1.4)	3.4	(0.5)	0.5	(0.3)	9.4	(0.8)	0.6	(0.2)	9.9	(0.9)	0.8	(0.3)	7.7	(0.7)	35.6	(3.0)
France	81.9	(1.3)	1.7	(0.3)	1.2	(0.4)	6.5	(0.9)	0.7	(0.3)	4.3	(0.6)	0.8	(0.3)	2.9	(0.5)	30.4	(4.0)
Germany	78.0	(1.5)	2.2	(0.4)	0.6	(0.2)	6.8	(0.9)	0.5	(0.3)	6.0	(0.7)	0.9	(0.3)	5.0	(0.7)	36.3	(3.6)
Greece	91.3	(0.9)	1.2	(0.3)	0.7	(0.4)	3.8	(0.5)	0.4	(0.1)	1.4	(0.3)	0.3	(0.2)	1.0	(0.3)	23.9	(5.7)
Hungary	85.4	(1.2)	1.5	(0.3)	0.3	(0.2)	5.6	(0.8)	0.3	(0.1)	4.4	(0.8)	0.3	(0.2)	2.3	(0.4)	26.8	(4.3)
Iceland	85.0	(1.0)	1.0	(0.2)	0.5	(0.2)	7.2	(0.8)	0.2	(0.1)	3.1	(0.5)	0.6	(0.3)	2.4	(0.4)	36.5	(4.8)
Ireland	83.2	(1.4)	1.9	(0.4)	1.6	(0.5)	3.9	(0.7)	1.1	(0.4)	2.3	(0.4)	1.0	(0.3)	5.0	(0.7)	48.8	(3.7)
Italy	88.6	(0.8)	1.3	(0.2)	1.4	(0.2)	4.1	(0.5)	0.4	(0.1)	2.4	(0.3)	0.6	(0.1)	1.4	(0.3)	25.5	(4.1)
Japan	73.0	(1.6)	3.1	(0.5)	0.6	(0.3)	8.4	(0.9)	0.6	(0.2)	7.4	(0.7)	1.1	(0.3)	5.8	(0.7)	34.4	(3.7)
Korea	67.0	(2.1)	0.3	(0.2)	2.4	(0.4)	13.7	(1.2)	0.5	(0.2)	2.8	(0.8)	5.9	(0.8)	7.6	(0.9)	68.4	(4.8)
Luxembourg	85.1	(0.9)	0.9	(0.2)	0.4	(0.2)	6.5	(0.7)	0.4	(0.2)	3.3	(0.5)	0.7	(0.2)	2.7	(0.4)	36.6	(5.7)
Mexico	98.5	(0.3)	0.1	(0.1)	0.2	(0.1)	0.9	(0.3)	0.0	(0.0)	0.2	(0.1)	0.1	(0.0)	0.0	(0.0)	9.4	(5.8)
Netherlands	74.3	(1.3)	1.4	(0.3)	0.3	(0.1)	9.4	(1.0)	0.3	(0.2)	7.6	(0.9)	1.0	(0.3)	5.6	(0.7)	37.4	(3.9)
New Zealand	73.5	(1.3)	2.2	(0.4)	1.3	(0.4)	5.9	(0.7)	1.1	(0.4)	6.0	(0.7)	0.9	(0.4)	9.1	(0.9)	49.6	(3.8)
Norway	85.4	(1.2)	1.0	(0.2)	1.2	(0.3)	5.9	(0.7)	0.4	(0.2)	2.6	(0.5)	0.8	(0.2)	2.7	(0.4)	40.8	(4.7)
Poland	83.1	(1.2)	1.2	(0.3)	2.4	(0.4)	4.8	(0.6)	0.6	(0.2)	2.2	(0.4)	1.6	(0.3)	4.1	(0.5)	50.1	(4.8)
Portugal	90.6	(0.9)	0.5	(0.2)	0.8	(0.2)	3.8	(0.4)	0.2	(0.2)	1.5	(0.4)	0.7	(0.3)	1.7	(0.4)	43.1	(7.1)
Slovak Republic	85.2	(1.2)	1.0	(0.4)	0.5	(0.2)	6.9	(0.9)	0.3	(0.1)	3.3	(0.5)	0.6	(0.2)	2.2	(0.4)	32.3	(4.3)
Spain	89.1	(0.8)	1.6	(0.3)	0.2	(0.1)	4.9	(0.5)	0.1	(0.1)	3.3	(0.3)	0.2	(0.1)	0.7	(0.2)	12.1	(2.8)
Sweden	83.1	(1.2)	1.2	(0.3)	1.6	(0.4)	5.6	(0.8)	0.6	(0.2)	3.2	(0.6)	1.2	(0.3)	3.6	(0.5)	41.7	(4.8)
Switzerland	74.1	(1.3)	0.8	(0.2)	0.2	(0.1)	13.9	(1.0)	0.2	(0.1)	6.1	(0.6)	0.7	(0.2)	4.1	(0.5)	36.8	(3.3)
Turkey	94.3	(1.5)	0.1	(0.1)	0.5	(0.3)	3.7	(1.0)	0.1	(0.0)	0.4	(0.2)	0.5	(0.2)	0.3	(0.3)	34.3	(21.4)
United Kingdom	79.8	(0.9)	4.4	(0.5)	0.7	(0.2)	3.1	(0.5)	1.2	(0.3)	5.3	(0.6)	0.4	(0.2)	5.2	(0.4)	32.7	(2.2)
United States	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD average	*81.4*	*(0.2)*	*1.5*	*(0.1)*	*0.8*	*(0.1)*	*6.8*	*(0.1)*	*0.5*	*(0.0)*	*4.1*	*(0.1)*	*1.0*	*(0.1)*	*3.9*	*(0.1)*	*36.9*	*(1.1)*
Partner countries and economies																				
Argentina	98.4	(0.5)	0.2	(0.1)	0.3	(0.3)	0.7	(0.3)	0.1	(0.1)	0.1	(0.1)	0.1	(0.1)	0.1	(0.1)	13.3	(11.2)
Azerbaijan	98.9	(0.5)	a	a	0.2	(0.1)	0.9	(0.4)	a	a	0.0	(0.0)	0.0	(0.0)	a	a	a	a
Brazil	98.0	(0.6)	0.2	(0.1)	0.4	(0.1)	0.6	(0.2)	0.1	(0.1)	0.3	(0.2)	0.2	(0.1)	0.3	(0.2)	33.4	(18.7)
Bulgaria	94.4	(1.1)	1.3	(0.4)	0.4	(0.2)	1.8	(0.5)	0.3	(0.2)	1.2	(0.4)	0.1	(0.1)	0.6	(0.3)	17.2	(8.4)
Chile	94.4	(1.1)	0.9	(0.3)	2.0	(0.6)	0.8	(0.3)	0.4	(0.2)	0.5	(0.2)	0.4	(0.2)	0.6	(0.3)	24.3	(8.8)
Colombia	99.0	(0.3)	0.1	(0.1)	0.3	(0.2)	0.4	(0.3)	0.0	(0.0)	0.1	(0.1)	0.0	(0.0)	0.1	(0.1)	13.3	(21.8)
Croatia	91.6	(0.8)	1.5	(0.3)	0.3	(0.1)	2.5	(0.5)	0.2	(0.2)	2.5	(0.4)	0.1	(0.1)	1.3	(0.3)	23.0	(4.4)
Estonia	83.2	(1.1)	2.7	(0.5)	0.1	(0.1)	4.9	(0.6)	0.2	(0.2)	6.3	(0.7)	0.1	(0.1)	2.7	(0.4)	22.7	(3.0)
Hong Kong-China	66.9	(1.7)	1.2	(0.3)	0.7	(0.2)	13.5	(1.3)	0.3	(0.1)	9.6	(0.9)	1.3	(0.4)	6.5	(0.9)	36.9	(3.4)
Indonesia	99.4	(0.3)	a	a	0.0	(0.0)	0.5	(0.3)	a	a	0.1	(0.0)	0.1	(0.0)	a	a	0.0	(0.0)
Israel	88.2	(1.2)	2.0	(0.5)	1.1	(0.3)	3.5	(0.7)	0.8	(0.2)	1.7	(0.4)	0.6	(0.3)	2.1	(0.4)	32.2	(4.9)
Jordan	99.1	(0.3)	0.4	(0.2)	0.1	(0.1)	0.2	(0.2)	0.0	(0.0)	0.1	(0.1)	0.0	(0.0)	0.0	(0.0)	2.8	(5.2)
Kyrgyzstan	99.9	(0.1)	0.0	(0.1)	0.0	(0.0)	0.1	(0.1)	a	a	0.0	(0.0)	0.0	(0.0)	a	a	0.0	(0.0)
Latvia	90.6	(1.1)	0.8	(0.2)	0.7	(0.4)	4.0	(0.6)	0.2	(0.1)	2.1	(0.5)	0.3	(0.1)	1.2	(0.3)	28.6	(7.5)
Liechtenstein	81.1	(3.1)	a	a	1.1	(1.0)	6.7	(2.6)	0.6	(0.6)	6.7	(2.6)	a	a	4.3	(2.1)	36.6	(18.6)
Lithuania	89.0	(1.1)	0.5	(0.2)	0.5	(0.2)	5.7	(0.7)	0.2	(0.1)	2.5	(0.5)	0.2	(0.2)	1.4	(0.4)	30.6	(7.2)
Macao-China	78.6	(1.1)	0.5	(0.2)	0.3	(0.2)	14.0	(1.2)	0.1	(0.1)	4.6	(0.6)	0.6	(0.3)	1.4	(0.3)	21.8	(5.1)
Montenegro	98.9	(0.3)	0.1	(0.1)	a	a	0.7	(0.3)	0.1	(0.1)	0.1	(0.1)	0.1	(0.1)	0.1	(0.1)	47.1	(29.6)
Qatar	98.8	(0.2)	0.1	(0.1)	0.1	(0.1)	0.5	(0.2)	0.1	(0.1)	0.1	(0.1)	0.1	(0.1)	0.2	(0.1)	42.1	(21.7)
Romania	97.9	(0.5)	0.2	(0.1)	0.1	(0.1)	1.3	(0.3)	0.0	(0.0)	0.5	(0.2)	a	a	0.0	(0.0)	5.1	(6.0)
Russian Federation	89.5	(1.1)	1.6	(0.5)	0.2	(0.1)	5.0	(0.7)	0.1	(0.1)	2.9	(0.4)	0.2	(0.1)	0.6	(0.2)	11.0	(4.1)
Serbia	96.0	(0.6)	0.3	(0.2)	0.0	(0.0)	2.8	(0.6)	a	a	0.7	(0.3)	0.1	(0.1)	0.1	(0.0)	5.4	(5.5)
Slovenia	82.1	(0.9)	2.7	(0.6)	0.1	(0.1)	5.0	(0.8)	0.2	(0.2)	7.4	(0.7)	0.1	(0.1)	2.4	(0.5)	18.6	(3.6)
Chinese Taipei	64.3	(1.8)	0.9	(0.2)	0.0	(0.0)	19.6	(1.0)	0.1	(0.0)	11.7	(0.9)	0.3	(0.1)	3.1	(0.6)	19.8	(2.6)
Thailand	98.2	(0.4)	0.1	(0.1)	0.1	(0.1)	1.3	(0.4)	a	a	0.3	(0.2)	0.0	(0.0)	0.1	(0.1)	12.2	(16.1)
Tunisia	99.1	(0.4)	0.1	(0.1)	0.1	(0.1)	0.6	(0.4)	a	a	0.1	(0.1)	0.1	(0.1)	0.1	(0.1)	10.4	(29.9)
Uruguay	93.7	(0.7)	0.5	(0.2)	1.2	(0.4)	2.8	(0.4)	0.2	(0.1)	0.6	(0.2)	0.4	(0.1)	0.6	(0.2)	28.9	(8.6)

Source: OECD, *PISA 2006 Database.*

StatLink http://dx.doi.org/10.1787/664076271473

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Table A4.3.
Students' socio-economic background, by performance group

		PISA index of economic, social and cultural status (ESCS)						Percentage of students in each performance group with the PISA index of economic, social and cultural status (ESCS) lower than the national average ESCS						Percentage of students in each performance group with the PISA index of economic, social and cultural status (ESCS) lower than the OECD average ESCS					
		Strong performers		Top performers		Difference in the mean index between strong performers and top performers		Strong performers		Top performers		Difference in the percentages between strong performers and top performers		Strong performers		Top performers		Difference in the percentages between strong performers and top performers	
		Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	%	S.E.	%	S.E.	Dif.	S.E.	%	S.E.	%	S.E.	Dif.	S.E.
OECD countries	Australia	0.38	(0.02)	0.60	(0.02)	**-0.22**	(0.03)	39.4	(1.2)	28.3	(1.4)	**11.0**	(1.9)	30.3	(1.2)	19.7	(1.3)	**10.6**	(1.8)
	Austria	0.49	(0.04)	0.61	(0.05)	**-0.12**	(0.06)	37.6	(2.1)	32.6	(3.3)	5.0	(3.7)	28.7	(1.8)	23.6	(2.6)	5.1	(3.0)
	Belgium	0.54	(0.03)	0.75	(0.04)	**-0.21**	(0.04)	33.8	(1.5)	23.4	(1.8)	**10.4**	(2.2)	26.2	(1.4)	17.8	(1.6)	**8.4**	(1.9)
	Canada	0.52	(0.02)	0.70	(0.02)	**-0.18**	(0.03)	40.7	(1.4)	30.5	(1.5)	**10.2**	(1.8)	26.3	(1.3)	17.3	(1.4)	**9.0**	(1.7)
	Czech Republic	0.26	(0.03)	0.57	(0.04)	**-0.32**	(0.04)	38.6	(2.0)	23.0	(1.8)	**15.6**	(2.3)	37.5	(1.9)	21.9	(1.8)	**15.6**	(2.3)
	Denmark	0.65	(0.04)	0.94	(0.06)	**-0.29**	(0.07)	33.6	(2.0)	23.0	(2.9)	**10.6**	(3.1)	23.4	(1.8)	14.5	(2.7)	**8.9**	(3.2)
	Finland	0.35	(0.03)	0.57	(0.03)	**-0.22**	(0.04)	43.7	(1.6)	33.5	(2.0)	**10.2**	(2.4)	32.6	(1.5)	24.4	(1.5)	**8.2**	(2.0)
	France	0.30	(0.04)	0.59	(0.06)	**-0.28**	(0.06)	30.2	(2.2)	18.6	(3.3)	**11.5**	(4.1)	35.9	(2.2)	22.4	(2.9)	**13.5**	(3.4)
	Germany	0.62	(0.03)	0.90	(0.04)	**-0.28**	(0.05)	37.6	(2.1)	25.8	(2.4)	**11.8**	(3.7)	25.6	(1.5)	13.3	(1.9)	**12.3**	(2.8)
	Greece	0.33	(0.05)	0.64	(0.10)	**-0.31**	(0.11)	32.3	(2.5)	18.2	(3.5)	**14.1**	(3.7)	37.5	(2.7)	21.2	(3.9)	**16.3**	(4.5)
	Hungary	0.35	(0.04)	0.69	(0.06)	**-0.34**	(0.06)	34.6	(2.0)	20.3	(2.8)	**14.3**	(3.2)	38.6	(2.2)	22.8	(2.8)	**15.8**	(3.4)
	Iceland	1.03	(0.04)	1.20	(0.07)	**-0.17**	(0.09)	35.3	(2.2)	25.6	(3.3)	**9.7**	(4.3)	11.5	(1.6)	6.9	(1.9)	4.7	(2.7)
	Ireland	0.28	(0.04)	0.48	(0.05)	**-0.21**	(0.05)	38.3	(2.5)	27.7	(2.7)	**10.6**	(2.9)	39.4	(2.4)	28.5	(2.7)	**10.9**	(2.9)
	Italy	0.29	(0.03)	0.59	(0.06)	**-0.30**	(0.06)	34.2	(1.9)	22.4	(2.7)	**11.9**	(3.4)	36.9	(1.9)	25.4	(2.9)	**11.5**	(3.5)
	Japan	0.11	(0.03)	0.27	(0.03)	**-0.17**	(0.04)	44.3	(1.7)	33.7	(2.2)	**10.6**	(2.8)	45.5	(1.8)	34.9	(2.2)	**10.6**	(3.0)
	Korea	0.17	(0.03)	0.43	(0.07)	**-0.26**	(0.06)	41.8	(2.0)	28.7	(3.4)	**13.1**	(3.3)	43.0	(2.0)	29.4	(3.5)	**13.6**	(3.3)
	Luxembourg	0.65	(0.03)	0.87	(0.06)	**-0.22**	(0.07)	23.0	(2.1)	15.0	(3.0)	8.0	(4.2)	21.4	(1.9)	12.1	(2.7)	**9.3**	(3.9)
	Mexico	0.30	(0.08)	c	c	c	c	16.5	(3.1)	c	c	c	c	35.1	(3.3)	c	c	c	c
	Netherlands	0.53	(0.04)	0.80	(0.03)	**-0.26**	(0.05)	35.1	(2.0)	24.2	(1.9)	**10.9**	(3.1)	26.1	(2.0)	16.3	(1.9)	**9.8**	(2.9)
	New Zealand	0.29	(0.03)	0.58	(0.03)	**-0.29**	(0.04)	40.0	(1.8)	25.1	(1.8)	**14.9**	(2.5)	34.4	(2.0)	21.6	(1.7)	**12.8**	(2.5)
	Norway	0.66	(0.04)	0.82	(0.06)	**-0.16**	(0.08)	37.4	(2.7)	26.6	(3.1)	**10.8**	(4.5)	17.8	(1.9)	12.8	(2.9)	5.0	(3.6)
	Poland	0.03	(0.04)	0.40	(0.05)	**-0.37**	(0.06)	39.4	(2.5)	25.2	(3.0)	**14.3**	(4.5)	54.5	(2.0)	36.2	(3.0)	**18.4**	(3.8)
	Portugal	0.11	(0.07)	0.66	(0.11)	**-0.55**	(0.12)	29.1	(2.2)	18.0	(3.9)	**11.1**	(4.7)	46.1	(2.6)	31.3	(4.3)	**14.7**	(4.7)
	Slovak Republic	0.26	(0.04)	0.63	(0.06)	**-0.37**	(0.07)	39.4	(2.5)	23.3	(3.3)	**16.0**	(4.2)	45.8	(2.4)	28.4	(3.9)	**17.4**	(4.7)
	Spain	0.18	(0.05)	0.49	(0.08)	**-0.31**	(0.07)	33.3	(2.0)	22.5	(2.6)	**10.8**	(2.4)	43.9	(2.3)	32.2	(3.3)	**11.7**	(3.1)
	Sweden	0.49	(0.03)	0.68	(0.05)	**-0.19**	(0.06)	36.6	(2.0)	24.9	(3.2)	**11.8**	(4.3)	25.2	(2.0)	14.7	(2.5)	**10.5**	(3.4)
	Switzerland	0.40	(0.03)	0.67	(0.04)	**-0.27**	(0.05)	35.3	(1.4)	23.5	(2.3)	**11.9**	(3.0)	32.2	(1.4)	20.7	(2.1)	**11.4**	(2.8)
	Turkey	-0.07	(0.13)	c	c	c	c	17.0	(3.4)	c	c	c	c	47.4	(5.9)	c	c	c	c
	United Kingdom	0.44	(0.02)	0.68	(0.03)	**-0.25**	(0.03)	36.9	(1.5)	24.9	(1.8)	**11.9**	(2.1)	29.0	(1.4)	19.0	(1.6)	**10.0**	(1.9)
	United States	0.55	(0.05)	0.80	(0.06)	**-0.25**	(0.06)	29.4	(2.4)	19.2	(3.0)	**10.1**	(3.6)	25.1	(2.2)	14.6	(2.7)	**10.5**	(3.1)
	OECD average	0.40	(0.01)	0.66	(0.01)	**-0.26**	(0.01)	36.1	(0.4)	24.6	(0.5)	**11.5**	(0.6)	32.9	(0.4)	21.6	(0.5)	**11.3**	(0.6)
Partner countries and economies	Argentina	0.46	(0.11)	c	c	c	c	14.9	(3.4)	c	c	c	c	27.1	(4.7)	c	c	c	c
	Azerbaijan	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	Brazil	0.30	(0.12)	c	c	c	c	9.0	(2.6)	c	c	c	c	29.3	(4.5)	c	c	c	c
	Bulgaria	0.49	(0.07)	0.75	(0.10)	**-0.26**	(0.11)	24.1	(3.3)	15.8	(4.2)	8.3	(4.9)	30.6	(3.6)	19.6	(4.4)	**11.0**	(4.9)
	Chile	0.37	(0.08)	c	c	c	c	16.0	(2.5)	c	c	c	c	34.7	(3.5)	c	c	c	c
	Colombia	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	Croatia	0.24	(0.04)	0.63	(0.05)	**-0.39**	(0.07)	39.4	(2.0)	21.3	(3.2)	**18.1**	(4.2)	45.0	(2.1)	27.5	(3.6)	**17.6**	(4.2)
	Estonia	0.32	(0.04)	0.60	(0.05)	**-0.28**	(0.06)	41.5	(2.0)	27.1	(3.0)	**14.4**	(3.6)	36.1	(2.1)	22.6	(2.5)	**13.5**	(3.3)
	Hong Kong-China	-0.53	(0.05)	-0.32	(0.06)	**-0.20**	(0.06)	45.0	(2.2)	37.6	(3.1)	**7.4**	(3.3)	73.3	(2.2)	64.4	(3.3)	**8.9**	(2.8)
	Indonesia	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	Israel	0.60	(0.04)	0.76	(0.05)	**-0.17**	(0.07)	26.6	(2.7)	17.0	(3.1)	9.6	(4.7)	20.3	(2.4)	12.8	(2.5)	**7.5**	(3.7)
	Jordan	0.20	(0.08)	c	c	c	c	19.1	(3.2)	c	c	c	c	34.0	(3.9)	c	c	c	c
	Kyrgyzstan	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	Latvia	0.33	(0.04)	0.57	(0.08)	**-0.23**	(0.09)	35.4	(2.3)	23.1	(4.0)	12.3	(4.5)	36.4	(2.3)	23.6	(4.0)	**12.9**	(4.5)
	Liechtenstein	0.50	(0.10)	0.74	(0.14)	-0.24	(0.17)	37.2	(5.8)	30.2	(7.8)	7.0	(9.6)	34.4	(6.0)	18.2	(7.3)	16.2	(10.1)
	Lithuania	0.46	(0.05)	0.76	(0.07)	**-0.30**	(0.07)	33.0	(2.4)	17.8	(3.5)	**15.2**	(4.2)	31.6	(2.2)	17.2	(3.6)	**14.5**	(4.3)
	Macao-China	-0.77	(0.04)	-0.59	(0.08)	-0.18	(0.09)	44.9	(2.1)	40.6	(4.4)	4.3	(5.3)	83.4	(1.5)	74.9	(3.3)	**8.5**	(4.0)
	Montenegro	0.61	(0.12)	c	c	c	c	23.8	(5.9)	c	c	c	c	23.8	(5.9)	c	c	c	c
	Qatar	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	Romania	0.54	(0.09)	c	c	c	c	16.4	(4.9)	c	c	c	c	27.8	(4.7)	c	c	c	c
	Russian Federation	0.19	(0.04)	0.41	(0.07)	**-0.22**	(0.07)	36.0	(2.6)	22.7	(4.0)	**13.4**	(4.4)	39.5	(2.8)	26.9	(4.1)	**12.6**	(4.6)
	Serbia	0.50	(0.07)	c	c	c	c	28.2	(3.4)	c	c	c	c	33.0	(3.9)	c	c	c	c
	Slovenia	0.41	(0.03)	0.73	(0.05)	**-0.31**	(0.07)	38.4	(1.7)	24.4	(2.7)	**13.9**	(3.5)	32.9	(1.9)	20.6	(2.9)	**12.3**	(4.0)
	Chinese Taipei	-0.14	(0.03)	0.14	(0.03)	**-0.28**	(0.04)	40.4	(1.6)	28.5	(1.5)	**11.8**	(2.2)	57.2	(1.4)	43.0	(1.9)	14.2	(2.3)
	Thailand	-0.14	(0.11)	c	c	c	c	16.3	(2.9)	c	c	c	c	48.1	(4.5)	c	c	c	c
	Tunisia	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	Uruguay	0.45	(0.06)	c	c	c	c	16.6	(2.9)	c	c	c	c	31.9	(2.9)	c	c	c	c

Note: Values that are statistically significant are indicated in bold.
Source: OECD, *PISA 2006 Database.*
StatLink http://dx.doi.org/10.1787/664076271473

Table A4.4.

Percentage of students by performance group, according to the immigrant status

	Native students (born in the country of assessment with at least one of their parents born in the same country)		Students with an immigrant background: Strong performers		Students with an immigrant background: Top performers		Native students: Strong performers		Native students: Top performers		Difference in the percentages of top performers between native students and students with an immigrant background		If students' ESCS were equal to the national average ESCS: Difference in the percentages of top performers between native students and students with an immigrant background	If students' ESCS were equal to the national average ESCS: Increase in the logit of being top performers associated with students being native	
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	Dif.	S.E.	Dif. in %	Logistic regression coefficient	S.E.
OECD countries															
Australia	78.1	(1.2)	23.8	(1.3)	16.0	(1.8)	25.1	(0.6)	14.6	(0.6)	-1.4	(1.7)	-1.3	-0.11	(0.13)
Austria	86.8	(1.2)	10.4	(1.7)	2.9	(0.8)	25.8	(1.2)	11.1	(0.8)	**8.3**	(1.0)	**6.5**	**1.14**	(0.26)
Belgium	86.7	(1.0)	8.3	(1.2)	2.1	(0.5)	27.2	(0.9)	11.4	(0.6)	**9.3**	(0.7)	**6.8**	**1.41**	(0.25)
Canada	78.9	(1.2)	26.2	(1.6)	13.1	(1.3)	28.7	(0.8)	15.4	(0.6)	2.3	(1.4)	2.0	0.18	(0.12)
Czech Republic	98.1	(0.2)	c	c	c	c	22.0	(0.9)	11.8	(1.0)	c	c	c	c	c
Denmark	92.4	(0.8)	5.4	(1.6)	1.5	(0.8)	20.8	(1.0)	7.3	(0.7)	**5.7**	(1.0)	3.4	1.01	(0.63)
Finland	98.5	(0.3)	c	c	c	c	32.7	(0.9)	21.3	(0.8)	c	c	c	c	c
France	87.0	(1.0)	12.6	(2.3)	3.8	(1.6)	22.5	(1.1)	8.9	(0.7)	**5.0**	(1.6)	2.4	0.54	(0.45)
Germany	85.8	(1.0)	11.3	(1.8)	3.1	(0.9)	26.5	(1.0)	13.9	(0.8)	**10.8**	(1.1)	**7.2**	**1.13**	(0.32)
Greece	92.4	(0.7)	7.3	(2.6)	1.9	(1.1)	14.9	(0.9)	3.6	(0.4)	1.7	(1.2)	0.5	0.24	(0.66)
Hungary	98.3	(0.3)	c	c	c	c	21.1	(0.9)	7.0	(0.6)	c	c	c	c	c
Iceland	98.2	(0.2)	c	c	c	c	19.5	(0.8)	6.5	(0.5)	c	c	c	c	c
Ireland	94.4	(0.5)	20.8	(3.5)	12.0	(2.8)	21.8	(0.9)	9.5	(0.7)	-2.6	(2.8)	-1.3	-0.17	(0.27)
Italy	96.2	(0.3)	6.7	(1.9)	1.4	(0.8)	15.7	(0.6)	4.8	(0.4)	**3.4**	(0.8)	2.3	0.94	(0.62)
Japan	99.6	(0.1)	c	c	c	c	27.0	(1.1)	15.1	(0.8)	c	c	c	c	c
Korea	100.0	(0.0)	c	c	c	c	25.7	(0.9)	10.4	(1.1)	c	c	c	c	c
Luxembourg	63.9	(0.6)	10.5	(0.8)	3.2	(0.4)	22.6	(1.0)	7.5	(0.5)	**4.4**	(0.6)	**1.6**	**0.40**	(0.16)
Mexico	97.6	(0.3)	c	c	c	c	3.4	(0.4)	0.3	(0.1)	c	c	c	c	c
Netherlands	88.7	(1.1)	11.3	(2.2)	3.9	(1.2)	28.0	(1.0)	14.5	(0.9)	**10.6**	(1.3)	**6.6**	**0.91**	(0.30)
New Zealand	78.7	(1.0)	22.5	(1.7)	18.5	(1.4)	24.6	(0.8)	17.8	(0.8)	-0.7	(1.5)	0.1	0.01	(0.10)
Norway	93.9	(0.7)	8.1	(2.8)	4.0	(1.6)	18.1	(0.7)	6.4	(0.5)	2.4	(1.6)	0.8	0.17	(0.41)
Poland	99.8	(0.1)	c	c	c	c	19.6	(0.8)	6.9	(0.5)	c	c	c	c	c
Portugal	94.1	(0.8)	7.2	(2.4)	1.3	(0.9)	15.3	(0.9)	3.3	(0.4)	**2.0**	(0.9)	1.3	0.99	(0.75)
Slovak Republic	99.5	(0.1)	c	c	c	c	18.1	(1.0)	5.8	(0.5)	c	c	c	c	c
Spain	93.1	(0.7)	10.2	(2.1)	1.6	(0.8)	18.7	(0.7)	5.2	(0.4)	**3.6**	(1.0)	2.5	1.06	(0.57)
Sweden	89.2	(0.9)	9.7	(1.5)	3.5	(1.2)	22.8	(1.0)	8.5	(0.6)	**5.0**	(1.2)	3.4	0.67	(0.36)
Switzerland	77.6	(0.7)	11.5	(1.2)	4.2	(0.8)	27.2	(1.1)	12.4	(0.9)	**8.2**	(0.9)	**5.5**	**0.91**	(0.18)
Turkey	98.5	(0.4)	c	c	c	c	6.3	(1.2)	0.9	(0.3)	c	c	c	c	c
United Kingdom	91.4	(0.9)	17.3	(2.3)	9.8	(1.8)	22.6	(0.6)	14.4	(0.6)	**4.6**	(1.8)	2.6	0.27	(0.20)
United States	84.8	(1.2)	10.1	(1.6)	4.2	(0.9)	20.2	(1.0)	10.3	(0.8)	**6.1**	(1.0)	**2.9**	**0.53**	(0.20)
OECD average	90.7	(0.1)	12.6	(0.4)	5.6	(0.3)	22.5	(0.2)	10.0	(0.1)	**4.4**	(0.3)	**2.8**	**0.61**	(0.09)
Partner countries and economies															
Argentina	97.3	(0.3)	c	c	c	c	4.2	(0.7)	0.5	(0.1)	c	c	c	c	c
Azerbaijan	97.6	(0.5)	c	c	c	c	0.4	(0.2)	0.0	(0.0)	c	c	c	c	c
Brazil	97.6	(0.2)	c	c	c	c	3.5	(0.4)	0.6	(0.2)	c	c	c	c	c
Bulgaria	99.8	(0.1)	c	c	c	c	10.5	(1.1)	3.1	(0.6)	c	c	c	c	c
Chile	99.4	(0.1)	c	c	c	c	8.6	(1.0)	2.0	(0.3)	c	c	c	c	c
Colombia	99.6	(0.1)	c	c	c	c	2.0	(0.4)	0.2	(0.1)	c	c	c	c	c
Croatia	88.0	(0.7)	13.7	(1.8)	2.5	(0.8)	18.4	(0.9)	5.5	(0.5)	**3.0**	(0.9)	1.5	0.50	(0.33)
Estonia	88.4	(0.6)	17.8	(2.0)	7.3	(1.4)	27.7	(1.1)	12.3	(0.8)	**5.1**	(1.5)	**4.2**	**0.56**	(0.22)
Hong Kong-China	56.2	(1.4)	28.8	(1.5)	14.7	(1.2)	30.5	(1.4)	17.1	(1.2)	2.4	(1.5)	-1.8	-0.14	(0.12)
Indonesia	99.8	(0.1)	c	c	c	c	1.4	(0.5)	0.0	(0.0)	c	c	c	c	c
Israel	77.0	(1.2)	14.2	(1.4)	5.6	(1.0)	14.6	(0.9)	5.7	(0.7)	0.1	(1.1)	-1.0	-0.23	(0.21)
Jordan	83.2	(0.9)	7.5	(1.4)	0.7	(0.3)	5.4	(0.7)	0.6	(0.2)	0.0	(0.4)	0.1	0.23	(0.61)
Kyrgyzstan	97.4	(0.4)	c	c	c	c	0.7	(0.2)	0.0	(0.0)	c	c	c	c	c
Latvia	92.9	(0.6)	16.4	(2.8)	4.6	(1.6)	17.0	(1.0)	4.2	(0.4)	-0.5	(1.6)	-0.1	-0.04	(0.39)
Liechtenstein	63.2	(2.7)	16.1	(4.0)	12.2	(2.5)	30.6	(3.3)	12.5	(2.3)	0.3	(3.3)	-0.6	-0.07	(0.33)
Lithuania	97.9	(0.4)	c	c	c	c	17.7	(0.9)	5.0	(0.7)	c	c	c	c	c
Macao-China	26.4	(0.6)	23.9	(1.0)	5.4	(0.4)	20.7	(1.5)	5.3	(0.8)	-0.1	(0.9)	-1.2	-0.26	(0.20)
Montenegro	92.8	(0.5)	6.7	(2.3)	0.6	(0.6)	3.5	(0.4)	0.3	(0.1)	0.2	(0.4)	0.2	11.71	(7.53)
Qatar	59.5	(0.5)	4.1	(0.4)	0.9	(0.2)	0.2	(0.1)	0.0	(0.0)	**-0.8**	(0.2)	m	m	m
Romania	99.9	(0.0)	c	c	c	c	4.2	(0.8)	0.5	(0.1)	c	c	c	c	c
Russian Federation	91.3	(0.5)	13.2	(2.7)	2.4	(1.1)	15.3	(1.1)	4.4	(0.5)	2.0	(1.2)	1.6	0.64	(0.52)
Serbia	91.0	(0.5)	5.8	(1.5)	0.6	(0.4)	6.7	(0.6)	0.8	(0.2)	0.2	(0.4)	0.2	0.30	(0.87)
Slovenia	89.7	(0.5)	13.4	(2.3)	3.5	(1.1)	23.7	(1.2)	14.1	(0.7)	**10.6**	(1.3)	**6.7**	**1.01**	(0.35)
Chinese Taipei	99.4	(0.1)	c	c	c	c	28.3	(1.0)	14.9	(0.9)	c	c	c	c	c
Thailand	99.7	(0.1)	c	c	c	c	4.1	(0.4)	0.4	(0.1)	c	c	c	c	c
Tunisia	99.2	(0.1)	c	c	c	c	2.0	(0.5)	0.1	(0.1)	c	c	c	c	c
Uruguay	99.6	(0.1)	c	c	c	c	7.1	(0.6)	1.5	(0.2)	c	c	c	c	c

Note: Values that are statistically significant are indicated in bold.
Source: OECD, *PISA 2006 Database.*
StatLink http://dx.doi.org/10.1787/664076271473

Table A4.5.

Percentage of students by performance group, according to the language spoken at home

	Language spoken at home most of the time is DIFFERENT from the language of assessment, from other official languages or from other national dialects		Language spoken at home most of the time is the SAME as the language of assessment, other official languages or another national dialects		Language spoken at home most of the time is DIFFERENT from the language of assessment, from other official languages or from other national dialects				Language spoken at home most of the time is the SAME as the language of assessment, other official languages or another national dialect			
					Strong performers		Top performers		Strong performers		Top performers	
	% of students	S.E.	% of students	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD countries												
Australia	8.0	(0.7)	92.0	(0.7)	21.9	(2.5)	13.7	(2.5)	25.1	(0.6)	15.0	(0.7)
Austria	10.0	(1.1)	90.0	(1.1)	9.8	(2.3)	2.2	(0.7)	25.7	(1.2)	11.1	(0.8)
Belgium	5.7	(0.5)	94.3	(0.5)	7.6	(1.6)	2.1	(0.9)	26.9	(0.8)	11.4	(0.6)
Canada	10.6	(0.7)	89.4	(0.7)	24.0	(2.3)	12.4	(1.7)	28.7	(0.7)	15.2	(0.6)
Czech Republic	0.8	(0.2)	99.2	(0.2)	c	c	c	c	22.0	(0.9)	11.8	(1.0)
Denmark	4.5	(0.5)	95.5	(0.5)	4.2	(1.8)	1.3	(1.1)	20.6	(1.0)	7.3	(0.7)
Finland	1.3	(0.2)	98.7	(0.2)	c	c	c	c	32.5	(0.9)	21.3	(0.8)
France	5.4	(0.5)	94.6	(0.5)	13.5	(2.6)	4.8	(1.7)	21.7	(1.1)	8.5	(0.7)
Germany	9.0	(0.7)	91.0	(0.7)	9.7	(2.1)	1.5	(0.8)	26.5	(1.0)	14.0	(0.8)
Greece	3.9	(0.5)	96.1	(0.5)	4.5	(2.5)	0.7	(0.6)	14.6	(0.9)	3.7	(0.4)
Hungary	0.8	(0.2)	99.2	(0.2)	c	c	c	c	21.2	(0.9)	7.0	(0.7)
Iceland	2.2	(0.3)	97.8	(0.3)	c	c	c	c	19.5	(0.8)	6.5	(0.5)
Ireland	2.0	(0.3)	98.0	(0.3)	c	c	c	c	21.8	(0.9)	9.6	(0.7)
Italy	2.9	(0.3)	97.1	(0.3)	c	c	c	c	16.9	(0.7)	5.2	(0.4)
Japan	0.3	c	99.7	(0.1)	c	c	c	c	27.4	(1.1)	15.5	(0.8)
Korea	0.1	c	99.9	(0.0)	c	c	c	c	25.6	(0.9)	10.4	(1.1)
Luxembourg	23.7	(0.6)	76.3	(0.6)	7.4	(0.9)	1.5	(0.5)	23.4	(1.0)	8.0	(0.5)
Mexico	0.2	(0.1)	99.8	(0.1)	c	c	c	c	3.2	(0.3)	0.3	(0.1)
Netherlands	5.9	(0.7)	94.1	(0.7)	11.6	(3.2)	3.4	(1.4)	27.1	(1.0)	13.9	(0.9)
New Zealand	8.7	(0.6)	91.3	(0.6)	19.6	(2.3)	15.1	(2.0)	25.1	(0.8)	18.5	(0.8)
Norway	4.7	(0.5)	95.3	(0.5)	10.0	(2.3)	3.8	(1.6)	17.9	(0.7)	6.4	(0.5)
Poland	0.4	c	99.6	(0.2)	c	c	c	c	19.4	(0.8)	6.8	(0.5)
Portugal	2.3	(0.4)	97.7	(0.4)	c	c	c	c	15.3	(0.9)	3.3	(0.4)
Slovak Republic	0.4	c	99.6	(0.1)	c	c	c	c	18.1	(1.0)	5.8	(0.5)
Spain	2.6	(0.3)	97.4	(0.3)	c	c	c	c	18.3	(0.8)	5.0	(0.4)
Sweden	7.8	(0.7)	92.2	(0.7)	9.5	(2.5)	2.9	(1.1)	22.5	(1.0)	8.5	(0.6)
Switzerland	12.9	(0.6)	87.1	(0.6)	9.5	(1.5)	3.1	(0.9)	26.8	(1.1)	12.2	(0.9)
Turkey	2.4	(0.4)	97.6	(0.4)	c	c	c	c	6.3	(1.2)	0.9	(0.3)
United Kingdom	3.8	(0.6)	96.2	(0.6)	15.2	(2.8)	7.1	(2.0)	22.4	(0.6)	14.3	(0.6)
United States	10.7	(1.0)	89.3	(1.0)	6.7	(1.3)	2.8	(0.9)	20.0	(1.1)	10.1	(0.8)
OECD average	***5.1***	***(0.1)***	***94.9***	***(0.1)***	***11.5***	***(0.6)***	***4.9***	***(0.3)***	***21.4***	***(0.2)***	***9.6***	***(0.1)***
Partner countries and economies												
Argentina	0.5	c	99.5	(0.2)	c	c	c	c	4.2	(0.6)	0.5	(0.1)
Azerbaijan	2.2	(0.7)	97.8	(0.7)	c	c	c	c	0.4	(0.2)	0.0	(0.0)
Brazil	0.3	(0.1)	99.7	(0.1)	c	c	c	c	3.4	(0.4)	0.6	(0.2)
Bulgaria	4.7	(0.9)	95.3	(0.9)	0.9	(0.8)	0.3	(0.4)	11.0	(1.2)	3.2	(0.6)
Chile	0.2	c	99.8	(0.1)	c	c	c	c	8.4	(1.1)	1.9	(0.4)
Colombia	0.5	c	99.5	(0.2)	c	c	c	c	1.9	(0.4)	0.2	(0.1)
Croatia	0.4	c	99.6	(0.1)	c	c	c	c	17.8	(0.9)	5.1	(0.5)
Estonia	0.5	c	99.5	(0.1)	c	c	c	c	26.4	(0.9)	11.6	(0.8)
Hong Kong-China	2.7	(0.7)	97.3	(0.7)	c	c	c	c	30.4	(1.0)	16.4	(1.0)
Indonesia	1.5	(0.3)	98.5	(0.3)	c	c	c	c	1.4	(0.6)	0.0	(0.0)
Israel	11.4	(1.1)	88.6	(1.1)	15.3	(2.4)	6.2	(1.5)	14.4	(0.9)	5.5	(0.7)
Jordan	2.9	(0.3)	97.1	(0.3)	c	c	c	c	5.7	(0.7)	0.6	(0.2)
Kyrgyzstan	1.2	(0.3)	98.8	(0.3)	c	c	c	c	0.7	(0.2)	0.0	(0.0)
Latvia	0.5	c	99.5	(0.1)	c	c	c	c	16.8	(1.0)	4.1	(0.4)
Liechtenstein	12.2	(1.6)	87.8	(1.6)	10.2	(5.4)	3.6	(3.4)	28.2	(2.9)	12.9	(2.0)
Lithuania	0.1	c	99.9	(0.0)	c	c	c	c	17.6	(0.9)	5.1	(0.7)
Macao-China	3.9	(0.3)	96.1	(0.3)	16.3	(3.9)	2.0	(1.4)	23.2	(0.8)	5.5	(0.4)
Montenegro	2.4	(0.2)	97.6	(0.2)	c	c	c	c	3.6	(0.4)	0.3	(0.1)
Qatar	4.1	(0.2)	95.9	(0.2)	10.1	(2.1)	3.1	(1.2)	1.3	(0.1)	0.2	(0.1)
Romania	0.6	c	99.4	(0.2)	c	c	c	c	4.3	(0.8)	0.5	(0.1)
Russian Federation	9.5	(2.0)	90.5	(2.0)	4.8	(1.8)	0.4	(0.5)	16.2	(1.1)	4.6	(0.5)
Serbia	0.5	c	99.5	(0.1)	c	c	c	c	6.6	(0.6)	0.8	(0.2)
Slovenia	5.6	(0.4)	94.4	(0.4)	9.7	(2.9)	2.2	(1.1)	23.6	(1.2)	13.8	(0.6)
Chinese Taipei	0.6	(0.1)	99.4	(0.1)	c	c	c	c	28.5	(1.0)	15.2	(0.9)
Thailand	1.6	(0.2)	98.4	(0.2)	c	c	c	c	4.1	(0.4)	0.4	(0.1)
Tunisia	4.7	(0.5)	95.3	(0.5)	3.1	(1.9)	0.6	(0.6)	1.9	(0.5)	0.1	(0.1)
Uruguay	1.4	(0.3)	98.6	(0.3)	c	c	c	c	7.1	(0.6)	1.5	(0.2)

Note: Values that are statistically significant are indicated in bold.
Source: OECD, *PISA 2006 Database.*
StatLink http://dx.doi.org/10.1787/664076271473

Table A4.5. *(continued)*

Percentage of students by performance group, according to the language spoken at home

		Difference in the percentages of top performers between students who do not speak the language of assessment at home and students who speak the language of assessment at home		If students' ESCS were equal to the national average ESCS: Difference in the percentages of top performers between students who do not speak the language of assessment at home and students who speak the language of assessment at home	If students' ESCS were equal to the national average ESCS: Increase in the logit of being top performers associated with students speaking the language of assessment at home	
		Dif.	S.E.	Dif. in %	Logistic regression coefficient	S.E.
OECD countries	Australia	1.2	(2.3)	-0.5	-0.05	(0.20)
	Austria	**8.9**	(1.0)	**7.2**	**1.39**	(0.34)
	Belgium	**9.3**	(1.1)	**6.6**	**1.33**	(0.47)
	Canada	2.9	(1.8)	1.8	0.16	(0.17)
	Czech Republic	c	c	c	c	c
	Denmark	**6.0**	(1.2)	4.1	1.44	(1.10)
	Finland	c	c	c	c	c
	France	**3.7**	(1.8)	1.5	0.30	(0.42)
	Germany	**12.4**	(1.0)	**9.6**	**1.97**	(0.54)
	Greece	**3.5**	(0.6)	2.5	11.72	(6.41)
	Hungary	c	c	c	c	c
	Iceland	c	c	c	c	c
	Ireland	c	c	c	c	c
	Italy	c	c	c	c	c
	Japan	c	c	c	c	c
	Korea	c	c	c	c	c
	Luxembourg	**6.5**	(0.7)	**3.3**	0.97	(0.32)
	Mexico	c	c	c	c	c
	Netherlands	**10.6**	(1.4)	**7.1**	**1.07**	(0.42)
	New Zealand	3.5	(2.0)	1.7	0.14	(0.17)
	Norway	2.6	(1.6)	1.6	0.35	(0.47)
	Poland	c	c	c	c	c
	Portugal	c	c	c	c	c
	Slovak Republic	c	c	c	c	c
	Spain	c	c	c	c	c
	Sweden	**5.6**	(1.3)	**4.1**	**0.90**	(0.43)
	Switzerland	**9.1**	(1.0)	**6.0**	**1.05**	(0.27)
	Turkey	c	c	c	c	c
	United Kingdom	**7.2**	(2.1)	4.4	0.50	(0.31)
	United States	**7.3**	(1.0)	**3.7**	**0.75**	(0.34)
	OECD average	**6.3**	(0.4)	**4.0**	**1.50**	(0.42)
Partner countries and economies	Argentina	c	c	c	c	c
	Azerbaijan	c	c	c	c	c
	Brazil	c	c	c	c	c
	Bulgaria	**3.1**	(0.7)	1.9	6.41	(7.54)
	Chile	c	c	c	c	c
	Colombia	c	c	c	c	c
	Croatia	c	c	c	c	c
	Estonia	c	c	c	c	c
	Hong Kong-China	c	c	c	c	c
	Indonesia	c	c	c	c	c
	Israel	-0.7	(1.7)	-1.9	-0.41	(0.31)
	Jordan	c	c	c	c	c
	Kyrgyzstan	c	c	c	c	c
	Latvia	c	c	c	c	c
	Liechtenstein	**9.3**	(3.8)	3.4	0.64	(1.12)
	Lithuania	c	c	c	c	c
	Macao-China	**3.5**	(1.5)	3.6	1.05	(0.81)
	Montenegro	c	c	c	c	c
	Qatar	-2.9	(1.2)	m	m	m
	Romania	c	c	c	c	c
	Russian Federation	**4.3**	(0.7)	0.2	7.29	(7.54)
	Serbia	c	c	c	c	c
	Slovenia	**11.6**	(1.3)	**0.5**	**1.39**	(0.53)
	Chinese Taipei	c	c	c	c	c
	Thailand	c	c	c	c	c
	Tunisia	-0.1	(0.5)	0.0	9.11	(9.58)
	Uruguay	c	c	c	c	c

Note: Values that are statistically significant are indicated in bold.
Source: OECD, *PISA 2006 Database.*
StatLink http://dx.doi.org/10.1787/664076271473

INDICATOR A5

WHAT ARE THE TOP PERFORMERS' ATTITUDES AND MOTIVATIONS FOR SCIENCE IN PISA 2006?

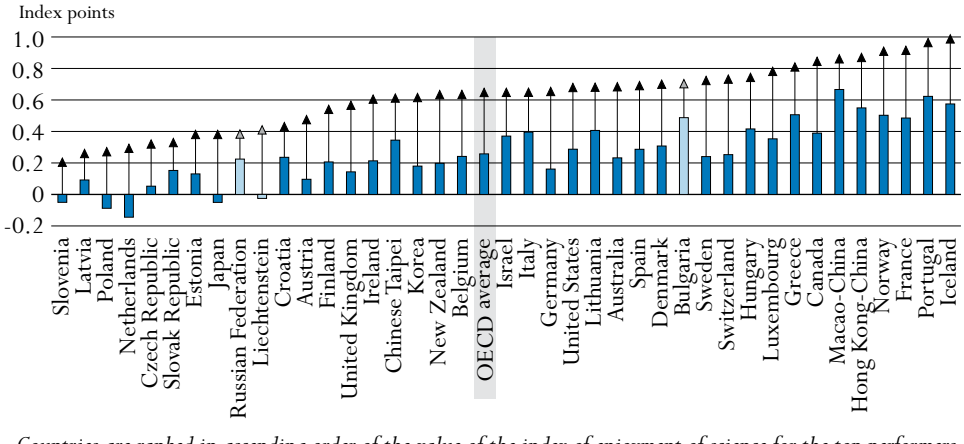
Students' attitudes and motivations tend to be closely associated with their performance, as shown in previous analysis by the OECD's Programme for International Student Assessment (PISA). Fostering interest and motivation in science, as well as preparing and informing students about science-related careers, are thus important policy goals related to conveying scientific knowledge and competencies to students, engaging them in science-related issues and fostering their career aspirations in science. This indicator shows how top performers in science tend to be dedicated and engaged learners who aspire to a career in science and feel well informed about potential career opportunities in science. At the same time, in a number of countries there are significant proportions of top performers who show comparatively low levels of interest in science.

Key results

Chart A5.1. Enjoyment of science for strong performers and top performers

This chart shows the difference in enjoyment of science between top performers and strong performers among the 15-year-old students assessed in PISA 2006, measured on an index that has a mean of zero and a standard deviation of one.

While across the OECD countries strong performers (*i.e.* students achieving at proficiency Level 4 on the PISA science scale) score one-quarter above the OECD average on an index measuring enjoyment of science, top performers (*i.e.* students reaching proficiency Levels 5 and 6) show an even higher level of enjoyment, two-thirds above the OECD average on the same index of enjoyment. The difference in favour of top performers is statistically significant in all OECD countries, with more than 0.45 index points in Australia, Canada, Germany, Sweden and Switzerland. The smallest differences are in the Czech Republic and Italy with 0.27 and 0.25 index points of difference respectively. Partner countries and economies also show statistically significant differences in favour of top performers except in three countries, Bulgaria, Liechtenstein and the Russian Federation.



Countries are ranked in ascending order of the value of the index of enjoyment of science for the top performers.

Note: Significant differences are highlighted with darker tone.

Source: OECD, *PISA 2006 Database*, Table A5.1a.

StatLink http://dx.doi.org/10.1787/664103188707

Other highlights of this indicator

- Top performers in science are involved in science-related activities outside school. More than a third of top performers regularly or very often watch science programmes on TV and read science magazines or science articles in newspapers. A somewhat smaller proportion of top performers regularly or very often visit science-related websites (21%) or borrow or buy science books (14%). A few top performers attend science clubs (7%) or listen to radio programs on science (5%). The index of science-related activities is significantly higher for top performers than strong performers.

- Moreover, top performers tend to spend more time studying science at school and less time on out-of-school lessons. On average, top performers receive four hours of instruction in science at school, half an hour more than strong performers. Conversely, they spend less time than strong performers in out-of-school lessons in science.

- Top performers in science care about studying their school science and about making an effort in science subjects, in part because they believe that it will pay off in their future academic and professional careers. With a score of 0.44 for the index of instrumental motivation, top performers have a significant advantage of 0.30 index point on strong performers. But reporting doing well in science seems to be less important than in mathematics.

- On average across the OECD, top performers, with 0.55 index points in the index of future-oriented motivation, report more often than strong performers that they actually intend to cultivate their interest in science, either by pursuing further scientific studies or by working in a science-related field.

- With respect to their aspirations, top performers in science report feeling well prepared for science-related careers. Across OECD countries, for instance, more than 80% of top performers agree that the subjects they study and their teachers provide them with the basic skills and knowledge for a science-related career. However, only few top performers in science report being well informed about science-related careers, or about where to find information on science-related careers. The difference in the index of student information on science-related careers between top performers and strong performers is not very wide.

Comparing top performers with strong performers using PISA indices

This indicator compares top performers (students achieving at proficiency Levels 5 and 6 on the PISA science scale) with strong students (students proficient at Level 4) using a range of different measures, known as PISA indices. Students completed a questionnaire on themselves and their learning. The information reported by students is summarised into several PISA indices. On each index, the average OECD student was given an index value of zero and about two-thirds of the OECD student population were given index values between -1 and 1 (*i.e.* the index has a standard deviation of 1). It is therefore possible to have both negative and positive mean index values. It should be noted that when a performance group has a negative mean index value, this does not necessarily mean that students in that group responded negatively to the underlying questions, but rather that these students responded less positively on average to such questions compared to the average OECD student. Likewise, groups with a positive mean index responded more positively than the average for the OECD countries. The percentages of students associated with each question contained within an index contribute to the calculation of the mean index value. For example, the index of enjoyment of science was derived from students' level of agreement with the following statements: i) I generally have fun when I am learning <broad science> topics; ii) I like reading about <broad science>; iii) I am happy doing <broad science> problems; iv) I enjoy acquiring new knowledge in <broad science>; and v) I am interested in learning about <broad science>. A four-point scale with the response categories "strongly agree", "agree", "disagree" and "strongly disagree" was used. All items were inverted for IRT scaling and positive values on this new index for PISA 2006 indicate higher levels of enjoyment of science.

Policy context

High-level competencies are critical for the creation of new knowledge, technologies and innovation. For countries near the technology frontier, this implies that the share of highly educated workers in the labour force is an important determinant of economic growth and social development. Students' attitudes and motivations tend to be closely related to performance. The link between attitudes and motivations is strengthened by evidence suggesting that motivation among top performers is unrelated to socio-economic factors but is rather a reflection of their enjoyment and active engagement in science learning inside and outside school. At the same time, in a number of countries there are significant proportions of top performers who show comparatively low levels of interest in science. While these education systems have succeeded in conveying scientific knowledge and competencies to students, they have been less successful at engaging them in science-related issues and fostering their career aspirations in science. These countries may thus not fully realise the potential of these students. Fostering interest and motivation in science thus seems to be an important policy goal in its own right. The potential payoff is significant: a large and diverse talent pool ready to take up the challenge of a career in science.

Evidence and explanations

Top performers' engagement in science

Enjoyment of science

Top performers in science are engaged science learners, reporting that they enjoy learning science, that they want to learn more, that their science lessons are fun and that they are motivated to do

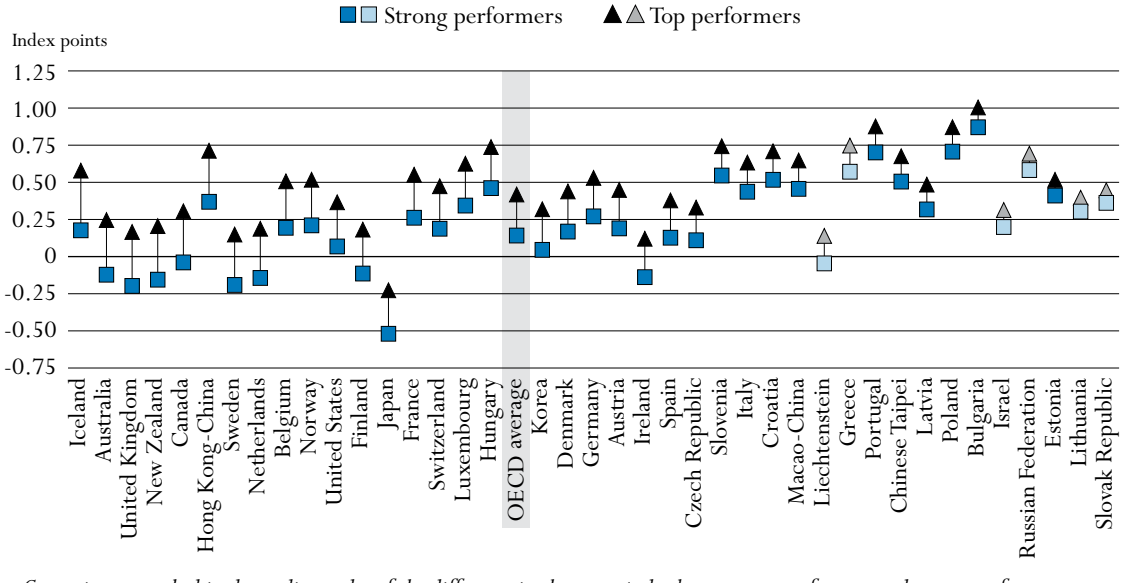
well in science. On average, 68% of top performers report being happy doing science problems (only 53% of strong performers did so) and 75% like reading about science (compared with 60% of strong performers). Over 80% of top performers report that they enjoy acquiring new knowledge in science, are interested in learning about science and generally have fun when learning science (Table A5.1b and Table A5.7a).

As shown in Chart A5.1, across OECD countries, the top performers' index of enjoyment is two-thirds above the OECD average and the difference between top performers and strong performers is statistically significant in all OECD countries, with more than 0.45 index point in Australia, Canada, Germany, Sweden and Switzerland - the smallest difference being in Italy with 0.25 index point. Partner countries and economies also have statistically significant differences in favour of top perfomers except in three countries where these differences are not significant. In France, Iceland, Norway and Portugal, top performers show a mean index higher than 0.9 index point while the Netherlands and Poland, and the partner countries Latvia and Slovenia, have a mean index lower than 0.3 index point.

Science-related activities outside of school

Top performers actively engage in science-related activities outside of school. About a third of top performers regularly or very often watch science programmes on TV (32%) and read science magazines or science articles in newspapers (38%). A somewhat smaller proportion of top performers regularly or very often visit science-related websites (21%) or borrow or buy science books (14%). A few top performers attend science clubs (7%) or listen to radio programs on science (5%), however these two activities are not very popular as regular activities (less than 10% of all students, whatever their performance level) (Table A5.7b).

Chart A5.2. Students' science-related activities for strong performers and top performers



Countries are ranked in descending order of the difference in the mean index between top performers and strong performers.

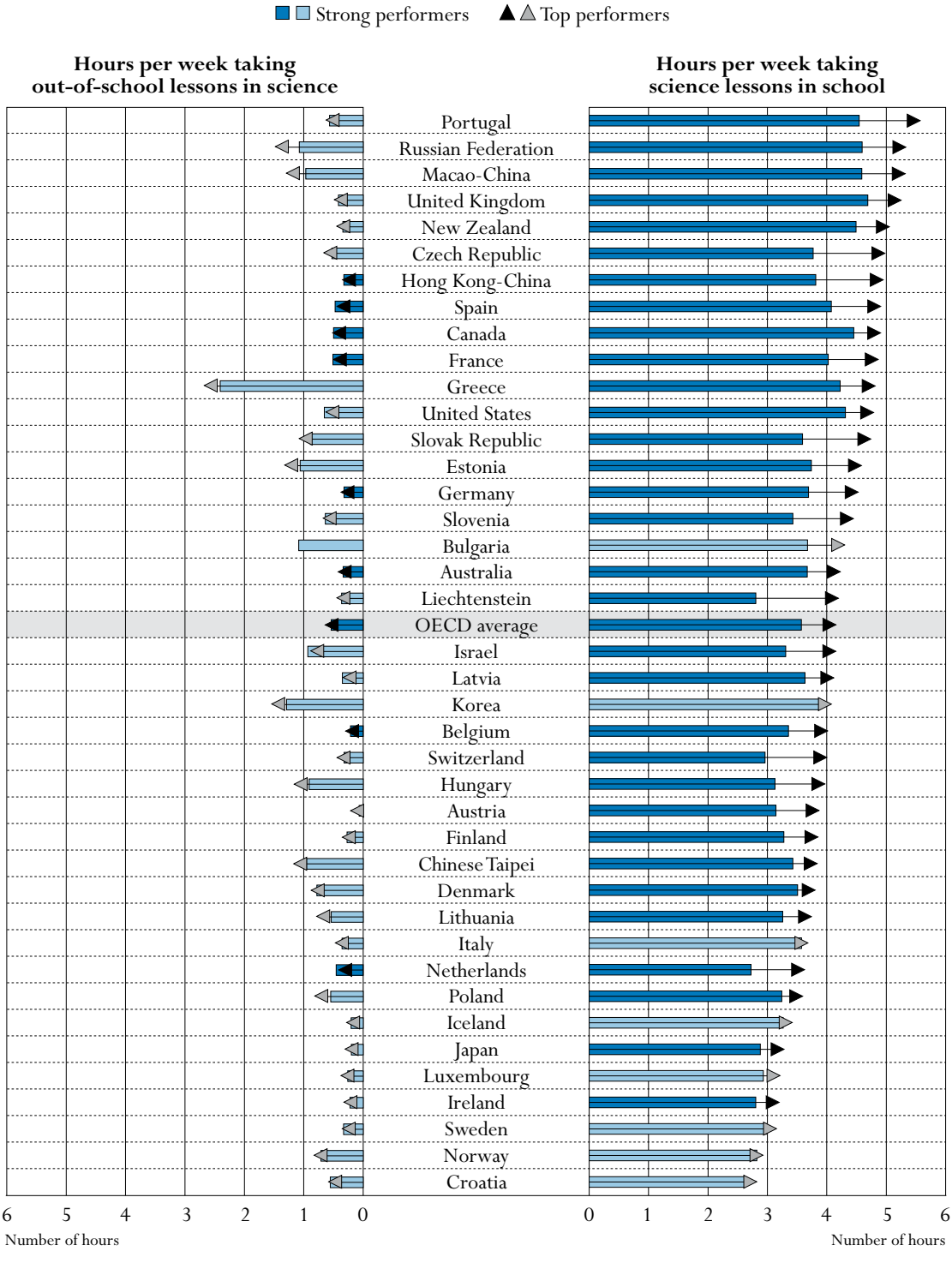
Note: Significant differences are highlighted with darker tone.

Source: OECD, *PISA 2006 Database*, Table A5.2a.

StatLink http://dx.doi.org/10.1787/664103188707

A5

Chart A5.3. Regular science lessons in school and out-of-school science lessons for strong performers and top performers



Countries are ranked in descending order of the average number of hours per week for top performers taking science lessons in school.

Note: Significant differences are highlighted with darker tone.

Source: OECD, *PISA 2006 Database*, Table A5.3.

StatLink http://dx.doi.org/10.1787/664103188707

As illustrated in Chart A5.2, the index of students' science-related activities is, on average and across OECD countries, equal to 0.42 for the top performers (*i.e.* a quarter or more of a standard deviation above the strong performers) - a difference that is moderately large and statistically significant. Significantly more top performers than strong performers reported pursuing science-related activities on a regular basis in all countries, except Greece, the Slovak Republic, and the partner countries Bulgaria, Israel, Liechtenstein and the Russian Federation.

Given the strong link between science performance and socio-economic status and the strong and direct relationship between science performance and frequency of participation in student-initiated science activities in each of the OECD countries, an adjustment was made for students' socio-economic background. Even after accounting for socio-economic background (Table A5.2a), it was found that all countries for which there are adequate data, except the partner economy Chinese Taipei, continue to show a statistically significant difference between top performers and strong performers.

Time in learning science: in school and out-of-school lessons

Previous PISA analysis has shown that student time spent in regular lessons at school is positively related to student performance (OECD, 2007a). The percentage of top performers taking regular science lessons is greater than the percentage of strong performers in all the countries except in Italy, with 2.2 percentage points in favour of strong performers, and in Iceland and Poland where this difference is less than 0.5 percentage point.

On average, top performers receive four hours of instruction in science at school, half an hour more than strong performers (Chart A5.3). This type of difference is even found in countries with the largest proportions of top performers such as Australia, Canada, Finland, Japan and New Zealand. In the Czech Republic, Portugal, the Slovak Republic, Switzerland, and the partner countries and economies Hong Kong-China and Liechtenstein, the top performers received about an hour or more of science lessons per week than the strong performers.

Conversely, across the OECD countries only 26.4% of top performers take out-of-school lessons compared with 30.6% of strong performers. Furthermore, top performers spend less time than strong performers in out-of-school lessons in science, although the absolute levels and differences among these performance groups are modest (but still significant). At the country level, this difference on time spent in out-of-school lessons between the two performance groups is more than 10 minutes only in France, the Netherlands and Spain (Chart A5.3).

Top performers' motivations in science

Instrumental motivation to learn science and the importance of doing well

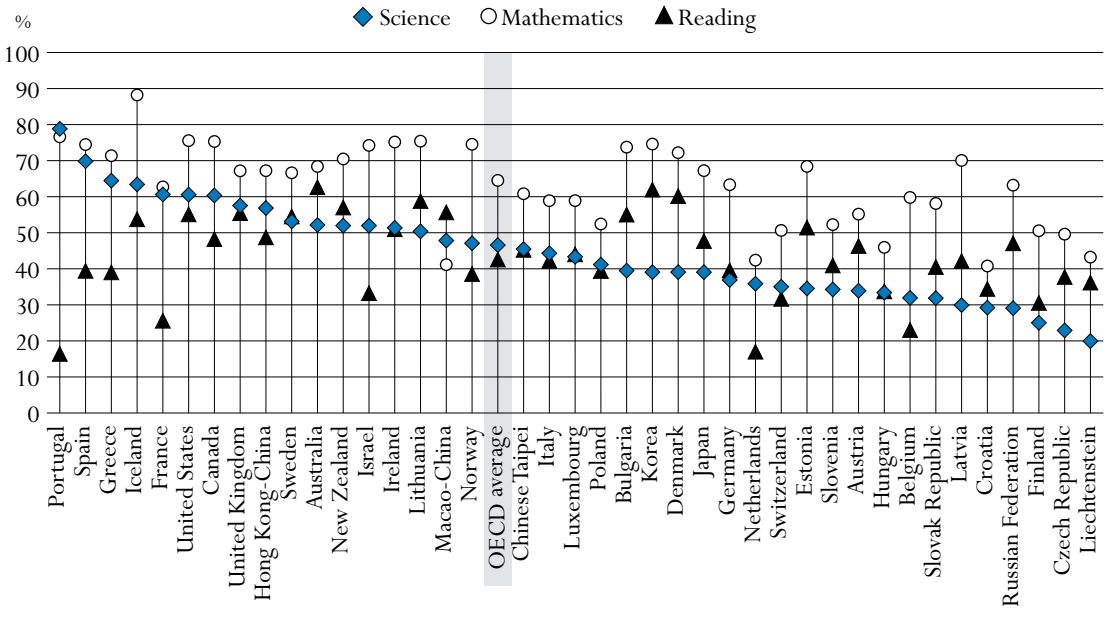
Top performers in science report being motivated to learn science because they believe it will help them with their future studies or career. Top performers report that they study science because they know it is useful for them (81%), because what they learn will improve their career prospects (76%) or that they need it for what they want to study later on (70%) (Table A5.7c).

Values on the index of instrumental motivation are calculated from students' levels of agreement with each of five statements concerning their motivation to learn science. On average across OECD countries, the index of instrumental motivation is higher for top performers (0.44) than

for strong performers (0.14). There are significant differences between top performers and strong performers in all OECD countries except Greece and Portugal (Table A5.4a).

The proportion of top performers in science reporting that doing well in science is very important to them can also be an indicator of the academic importance of science to students, beyond whether the subject is of interest to them or whether they enjoy their science lessons. Taken together with the degree of importance they attribute to mathematics and test language subjects, this can also indicate the relative importance of science to top performers. Students were asked to report how important it is in general for them to do well in science, mathematics and test language subjects. They could give one of four possible answers: "very important", "important", "of little importance" or "not important at all".

Chart A5.4. Importance of doing very well in science, mathematics and reading for top performers



Countries are ranked in descending order of the percentage of top performers reporting that doing well in science is very important.

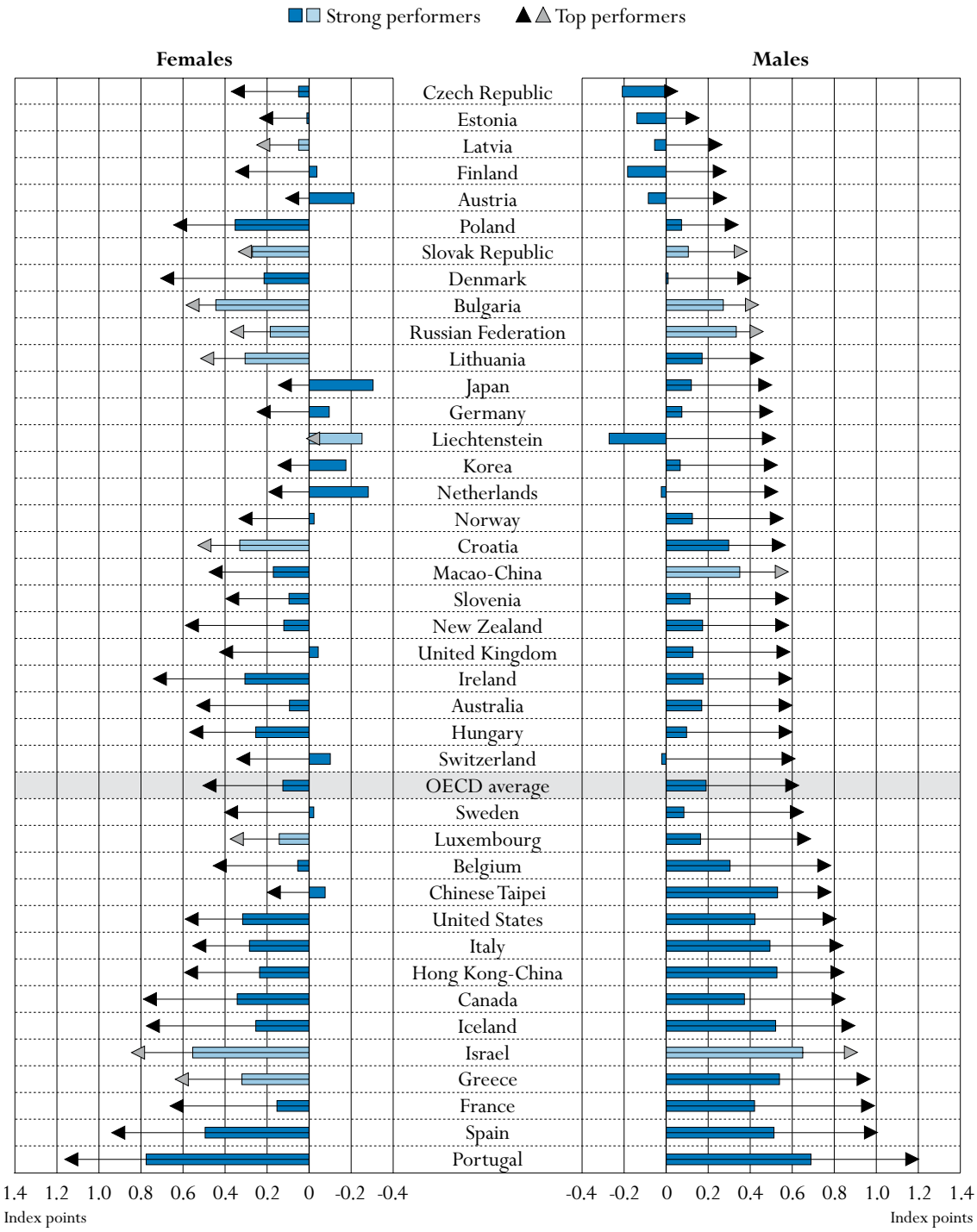
Source: OECD, *PISA 2006 Database,* Table A5.5.

StatLink http://dx.doi.org/10.1787/664103188707

Chart A5.4 shows that among science top performers in all the countries but Portugal, the most important subject for them to do well in is mathematics. Across the OECD countries, 64% of science top performers on average reported that doing well in mathematics is very important to them. This compared with 47% indicating that science is very important to them and 41% indicating that test language subjects were very important to them. Countries with the largest proportions of top performers reporting that doing well in science is very important to them include Portugal (78%), Spain (70%), Greece (65%), Iceland (63%), France (61%), the United States (61%) and Canada (60%).[1]

1. Note however that for both Portugal and Greece, we are talking about a small proportion of all students as only 3% of all students are top performers. The evidence in this case for these two countries should be interpreted with caution.

Chart A5.5. Index of future-oriented motivation to learn science for strong performers and top performers, by gender



Countries are ranked in ascending order of the index of future-oriented motivation to learn science for top performers.

Note: Significant differences are highlighted with darker tone.

Source: OECD, *PISA 2006 Database,* Table A5.4d, available on line.

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Future-oriented motivation to learn science

The index of future-oriented motivation seeks to ascertain students' aspirations with regard to study beyond secondary school and active involvement in scientific careers or projects.

On average across the OECD countries, 61% of top performers reported that they would like to work in a career involving science and 56% reported that they would like to study science after secondary school. In contrast, top performers showed less enthusiasm for working on science projects as adults or spending their lives doing advanced science (47% and 39% on average across OECD countries, respectively) (Table A5.7e).

Among the OECD countries, the difference in the index of future-orientated motivation to learn science between top performers and strong performers is 40% of a standard deviation, a substantively large and significant difference between the two adjacent performance groups. For example, on average across OECD countries only 39% of the strong performers reported that they would like to study science after secondary school – this compares to 56% of top performers. These index differences are observed in all OECD countries except the Slovak Republic, ranging from 22% of a standard deviation in Poland to 54% in France (Table A5.4a).

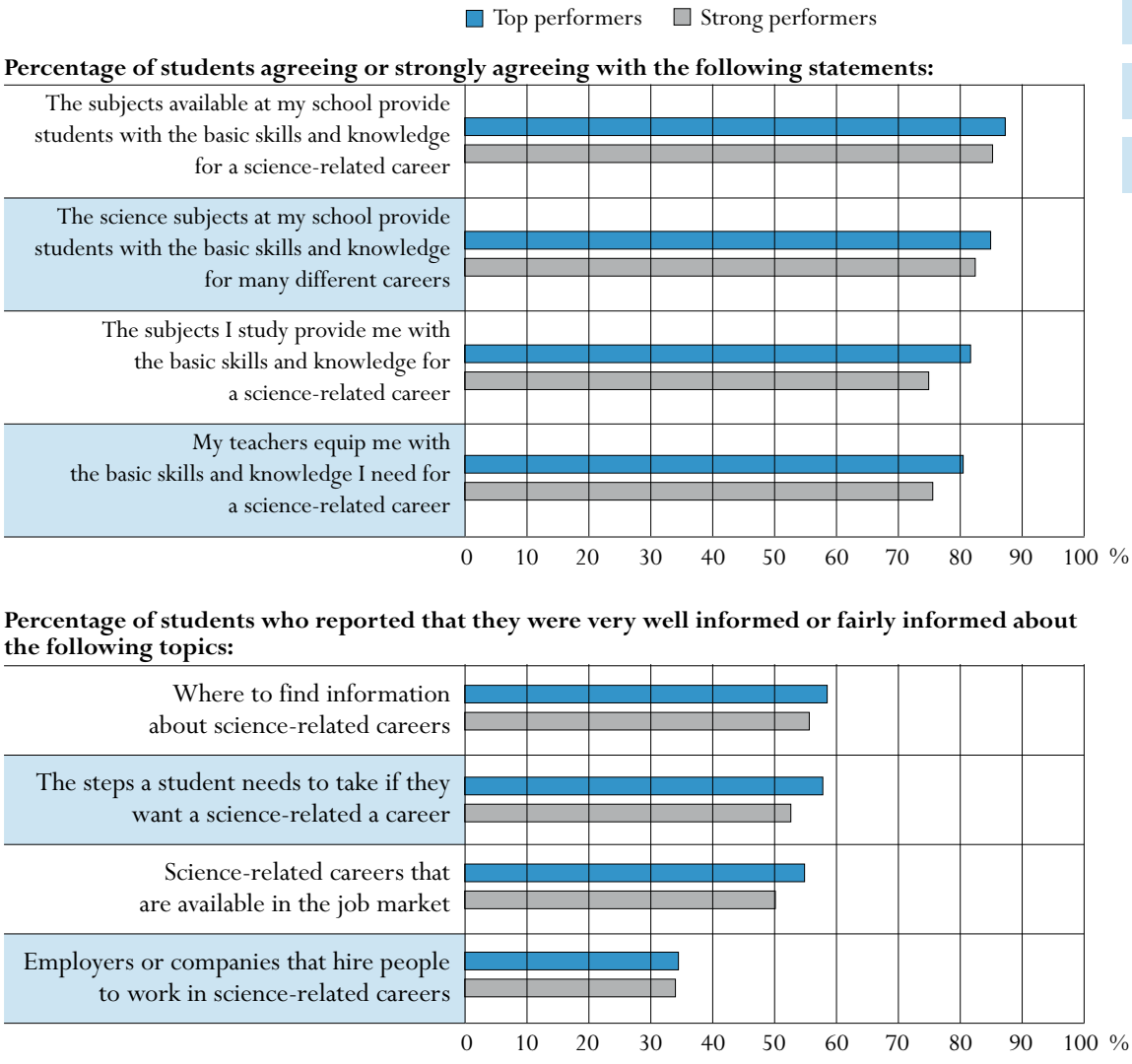
It is therefore instructive to compare future-oriented science aspirations according to gender given that in the past, females have been much less likely to choose scientific study and science careers than males. Chart A5.5 shows a male index value of 0.61 in contrast to the female index value of 0.47 on average across the OECD countries. The difference between genders is statistically significant. Of the 28 OECD countries included in this comparison, 12 show that male top performers in science have significantly higher aspirations to use science in the future than females. Only in the Czech Republic and Poland do female top performers report higher aspirations to use science in the future than male top performers. In the partner countries and economies, Hong Kong-China and Chinese Taipei also have significant differences in favour of males. Yet, the overall aspiration pattern among science top and strong performers is the same for both males and females in these countries. As is the case for males, female top performers report higher aspirations to use science in the future than female strong performers. So, the goal of increasing the number of adults engaged in the study and pursuit of scientific activities by fostering aspirations is valid for both males and females.

Science-related careers: school preparation and student information

As shown in Chart A5.6, across the OECD countries, for instance, top performers agree that the subjects they study (82%) and their teachers (81%) and the subjects available at their school (88%) provide them with the basic skills and knowledge for a science-related career.

The index of school preparation for science-related careers shows that top performers in science report being significantly better prepared for science-related careers than the strong performers (index values of 0.31 for top performers and 0.10 for strong performers, on average across the OECD, Table A5.6a). However, at the country level, some differences appear. Top performers in Australia, Canada, France and the United Kingdom have an index value higher than 0.71 (more than 0.4 index point above the OECD average for top performers) while other countries, Greece, Japan, Korea and the partner economy Macao-China, have an index value smaller than -0.21 (more than 0.5 index point below the OECD average for top performers).

Chart A5.6 Science-related careers for strong performers and top performers: school preparation and student information



Source: OECD, *PISA 2006 Database,* Table A5.6b and Table A5.6c, available on line.
StatLink http://dx.doi.org/10.1787/664103188707

The largest differences between top performers and strong performers are found in Australia, the Netherlands, New Zealand, Switzerland and the United Kingdom with more than 0.31 index point in favour of top performers. On the other end, among the OECD countries, Germany, Greece, Korea, Luxembourg, Poland and Portugal do not have significant differences between top performers and strong performers.

But Chart A5.6 also shows that only around half of top performers in science report being well informed about science-related careers available in the job market, about where to find information on science-related careers or about the steps they need to take if they want a science-related career. And only around a third of top performers feel well informed about employers or companies that hire people to work in science-related careers.

As shown in Table A5.6a, there are few differences between top performers and strong performers on the index of student information on science-related careers. Top performers have an index value of 0.15, a small advantage compared with strong performers who have an index value of 0.06. The only countries where there is a significant advantage in favour of top performers are Australia, Canada, Iceland, Korea, the Netherlands, New Zealand, Norway, the United Kingdom and the partner economy Chinese Taipei.

Definitions and methodologies

The achievement scores are based on assessments administered as part of the Programme for International Student Assessment (PISA) undertaken by the Organisation for Economic Co-operation and Development (OECD). The most recent and available PISA data were collected during the 2006 school year.

The target population studied for this indicator was 15-year-old students. Operationally, this referred to students who were from 15 years and 3 (completed) months to 16 years and 2 (completed) months at the beginning of the testing period and who were enrolled in an educational institution at the secondary level, irrespective of the grade levels or type of institutions in which they were enrolled, and irrespective of whether they participated in school full-time or part-time.

Further references

For further information about PISA 2006, see OECD (2007a) *PISA 2006: Science Competencies for Tomorrow's World*, OECD, Paris, and OECD (2009a) *Top of the Class: High Performing Learners in PISA 2006*, OECD, Paris. PISA data are also available on the PISA website: *www.pisa.oecd.org.*

The following additional material relevant to this indicator is available on line at:
StatLink http://dx.doi.org/10.1787/664103188707

- ***Table A5.1b. Enjoyment of science: percentage of strong performers and top performers***
- ***Table A5.2b. Science-related activities: percentage of strong performers and top performers***
- ***Table A5.4b. Instrumental motivation to learn science: percentage of strong performers and top performers***
- ***Table A5.4c. Future-oriented motivation to learn science: percentage of strong performers and top performers***
- ***Table A5.4d. Index of future-oriented motivation to learn science for strong performers and top performers, by gender***
- ***Table A5.6b. School preparation of science-related careers: percentage of strong performers and top performers***
- ***Table A5.6c. Student information on science-related careers: percentage of strong performers and top performers***

Table A5.1a.

Index of enjoyment of science for strong performers and top performers

		Index of enjoyment of science						Correlation between the index of enjoyment of science and the index of students' science-related activities	
		Strong performers		Top performers		Difference in the mean index between strong performers and top performers			
		Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Correl.	S.E.
OECD countries	Australia	0.23	(0.02)	0.68	(0.03)	**-0.45**	(0.04)	0.60	(0.01)
	Austria	0.10	(0.04)	0.48	(0.07)	**-0.38**	(0.09)	0.66	(0.01)
	Belgium	0.24	(0.03)	0.64	(0.03)	**-0.39**	(0.04)	0.59	(0.01)
	Canada	0.39	(0.03)	0.85	(0.03)	**-0.46**	(0.04)	0.59	(0.01)
	Czech Republic	0.05	(0.04)	0.32	(0.05)	**-0.27**	(0.05)	0.62	(0.01)
	Denmark	0.31	(0.04)	0.70	(0.08)	**-0.39**	(0.10)	0.62	(0.01)
	Finland	0.21	(0.03)	0.54	(0.03)	**-0.33**	(0.04)	0.58	(0.01)
	France	0.49	(0.03)	0.92	(0.05)	**-0.43**	(0.06)	0.59	(0.01)
	Germany	0.16	(0.04)	0.65	(0.05)	**-0.49**	(0.06)	0.63	(0.01)
	Greece	0.51	(0.05)	0.81	(0.11)	**-0.30**	(0.12)	0.60	(0.01)
	Hungary	0.42	(0.04)	0.74	(0.07)	**-0.33**	(0.08)	0.62	(0.01)
	Iceland	0.58	(0.04)	0.99	(0.06)	**-0.41**	(0.08)	0.63	(0.01)
	Ireland	0.21	(0.04)	0.61	(0.05)	**-0.39**	(0.06)	0.60	(0.01)
	Italy	0.40	(0.06)	0.65	(0.10)	**-0.25**	(0.13)	0.56	(0.01)
	Japan	-0.05	(0.03)	0.38	(0.03)	**-0.43**	(0.05)	0.60	(0.01)
	Korea	0.18	(0.04)	0.62	(0.06)	-0.44	(0.05)	0.57	(0.01)
	Luxembourg	0.35	(0.04)	0.78	(0.08)	-0.43	(0.09)	0.59	(0.01)
	Mexico	0.86	(0.05)	c	c	c	c	0.46	(0.02)
	Netherlands	-0.14	(0.03)	0.29	(0.04)	**-0.44**	(0.04)	0.60	(0.01)
	New Zealand	0.20	(0.03)	0.63	(0.04)	**-0.44**	(0.05)	0.60	(0.01)
	Norway	0.50	(0.04)	0.91	(0.06)	**-0.41**	(0.08)	0.58	(0.01)
	Poland	-0.09	(0.04)	0.27	(0.06)	**-0.36**	(0.07)	0.44	(0.01)
	Portugal	0.62	(0.03)	0.97	(0.06)	**-0.34**	(0.07)	0.59	(0.01)
	Slovak Republic	0.15	(0.04)	0.33	(0.06)	**-0.18**	(0.07)	0.60	(0.01)
	Spain	0.29	(0.03)	0.69	(0.05)	**-0.40**	(0.06)	0.57	(0.01)
	Sweden	0.24	(0.04)	0.72	(0.05)	**-0.48**	(0.07)	0.57	(0.01)
	Switzerland	0.25	(0.04)	0.73	(0.05)	**-0.48**	(0.08)	0.59	(0.01)
	Turkey	1.02	(0.06)	c	c	c	c	0.63	(0.01)
	United Kingdom	0.14	(0.03)	0.57	(0.04)	**-0.42**	(0.05)	0.57	(0.01)
	United States	0.29	(0.04)	0.68	(0.06)	**-0.39**	(0.06)	0.57	(0.01)
	OECD average	0.26	(0.01)	0.65	(0.01)	**-0.39**	(0.01)	0.59	(0.00)
Partner countries and economies	Argentina	0.11	(0.10)	c	c	c	c	0.57	(0.01)
	Azerbaijan	c	c	c	c	c	c	0.39	(0.02)
	Brazil	0.58	(0.08)	c	c	c	c	0.50	(0.01)
	Bulgaria	0.50	(0.04)	0.70	(0.08)	-0.20	(0.10)	0.48	(0.02)
	Chile	0.65	(0.06)	c	c	c	c	0.56	(0.01)
	Colombia	c	c	c	c	c	c	0.46	(0.02)
	Croatia	0.24	(0.04)	0.43	(0.08)	**-0.19**	(0.08)	0.60	(0.01)
	Estonia	0.13	(0.04)	0.38	(0.05)	**-0.25**	(0.06)	0.57	(0.01)
	Hong Kong-China	0.55	(0.03)	0.87	(0.03)	**-0.32**	(0.04)	0.60	(0.01)
	Indonesia	c	c	c	c	c	c	0.32	(0.02)
	Israel	0.37	(0.02)	0.65	(0.05)	**-0.28**	(0.05)	0.61	(0.01)
	Jordan	1.16	(0.06)	c	c	c	c	0.42	(0.01)
	Kyrgyzstan	c	c	c	c	c	c	0.48	(0.01)
	Latvia	0.09	(0.04)	0.26	(0.07)	**-0.17**	(0.08)	0.54	(0.01)
	Liechtenstein	-0.03	(0.12)	0.41	(0.21)	-0.44	(0.25)	0.61	(0.04)
	Lithuania	0.41	(0.04)	0.68	(0.07)	**-0.27**	(0.09)	0.49	(0.01)
	Macao-China	0.67	(0.03)	0.86	(0.09)	**-0.19**	(0.10)	0.57	(0.01)
	Montenegro	0.32	(0.11)	c	c	c	c	0.52	(0.02)
	Qatar	c	c	c	c	c	c	0.51	(0.01)
	Romania	0.64	(0.08)	c	c	c	c	0.47	(0.03)
	Russian Federation	0.23	(0.03)	0.38	(0.07)	-0.15	(0.08)	0.53	(0.01)
	Serbia	0.08	(0.06)	c	c	c	c	0.49	(0.01)
	Slovenia	-0.05	(0.04)	0.20	(0.06)	**-0.26**	(0.07)	0.59	(0.01)
	Chinese Taipei	0.35	(0.02)	0.61	(0.03)	**-0.27**	(0.03)	0.57	(0.01)
	Thailand	1.11	(0.05)	c	c	c	c	0.49	(0.01)
	Tunisia	c	c	c	c	c	c	0.35	(0.02)
	Uruguay	0.28	(0.07)	c	c	c	c	0.53	(0.01)

Note: Values that are statistically significant are indicated in bold.
Source: OECD, *PISA 2006 Database.*
Please refer to the Reader's Guide for information on the abbreviations used in this table.
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Table A5.2a.

Index of students' science-related activities for strong performers and top performers

		Index of students' science-related activities							
		Strong performers		Top performers		Difference in the mean index between strong performers and top performers		Difference in the mean index between strong performers and top performers after accounting for the PISA index of economic, social and cultural status	
		Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Dif.	S.E.
OECD countries	**Australia**	-0.12	(0.02)	0.25	(0.03)	**-0.37**	(0.04)	**-0.34**	(0.04)
	Austria	0.19	(0.04)	0.45	(0.05)	**-0.26**	(0.07)	**-0.25**	(0.07)
	Belgium	0.19	(0.03)	0.51	(0.04)	**-0.31**	(0.05)	**-0.29**	(0.05)
	Canada	-0.04	(0.03)	0.31	(0.03)	**-0.34**	(0.04)	**-0.32**	(0.04)
	Czech Republic	0.11	(0.03)	0.33	(0.05)	**-0.22**	(0.06)	**-0.20**	(0.06)
	Denmark	0.17	(0.04)	0.44	(0.06)	**-0.27**	(0.08)	**-0.24**	(0.07)
	Finland	-0.11	(0.02)	0.18	(0.03)	**-0.30**	(0.04)	**-0.28**	(0.04)
	France	0.26	(0.03)	0.55	(0.05)	**-0.29**	(0.06)	**-0.26**	(0.06)
	Germany	0.27	(0.03)	0.53	(0.04)	**-0.26**	(0.06)	**-0.22**	(0.06)
	Greece	0.57	(0.04)	0.75	(0.08)	-0.18	(0.09)	-0.14	(0.09)
	Hungary	0.46	(0.04)	0.74	(0.06)	**-0.28**	(0.07)	**-0.26**	(0.07)
	Iceland	0.18	(0.04)	0.58	(0.06)	**-0.40**	(0.07)	**-0.38**	(0.07)
	Ireland	-0.14	(0.04)	0.12	(0.05)	**-0.26**	(0.06)	**-0.24**	(0.06)
	Italy	0.44	(0.03)	0.63	(0.04)	**-0.20**	(0.05)	**-0.18**	(0.05)
	Japan	-0.52	(0.03)	-0.23	(0.03)	**-0.29**	(0.04)	**-0.27**	(0.04)
	Korea	0.05	(0.04)	0.32	(0.07)	**-0.27**	(0.06)	**-0.22**	(0.06)
	Luxembourg	0.34	(0.04)	0.63	(0.05)	**-0.28**	(0.07)	**-0.25**	(0.07)
	Mexico	0.86	(0.05)	c	c	c	c	c	c
	Netherlands	-0.14	(0.03)	0.19	(0.03)	**-0.33**	(0.04)	**-0.29**	(0.04)
	New Zealand	-0.16	(0.03)	0.21	(0.03)	**-0.36**	(0.05)	**-0.32**	(0.05)
	Norway	0.21	(0.04)	0.52	(0.05)	**-0.31**	(0.06)	**-0.29**	(0.06)
	Poland	0.71	(0.03)	0.87	(0.04)	**-0.16**	(0.05)	**-0.13**	(0.05)
	Portugal	0.70	(0.04)	0.88	(0.07)	**-0.18**	(0.07)	**-0.17**	(0.07)
	Slovak Republic	0.36	(0.03)	0.45	(0.05)	-0.08	(0.06)	-0.10	(0.06)
	Spain	0.13	(0.03)	0.38	(0.05)	**-0.25**	(0.06)	**-0.23**	(0.06)
	Sweden	-0.19	(0.04)	0.15	(0.05)	**-0.34**	(0.07)	**-0.31**	(0.07)
	Switzerland	0.19	(0.03)	0.47	(0.04)	**-0.29**	(0.05)	**-0.25**	(0.05)
	Turkey	1.03	(0.06)	c	c	c	c	c	c
	United Kingdom	-0.20	(0.03)	0.17	(0.04)	**-0.36**	(0.04)	**-0.33**	(0.04)
	United States	0.07	(0.04)	0.37	(0.05)	**-0.30**	(0.07)	**-0.28**	(0.07)
	OECD average	0.14	(0.01)	0.42	(0.01)	**-0.28**	*(0.01)*	**-0.25**	(0.01)
Partner countries and economies	**Argentina**	0.35	(0.10)	c	c	c	c	c	c
	Azerbaijan	c	c	c	c	c	c	c	c
	Brazil	0.53	(0.09)	c	c	c	c	c	c
	Bulgaria	0.87	(0.03)	1.00	(0.07)	**-0.13**	(0.08)	**-0.10**	(0.08)
	Chile	0.67	(0.04)	c	c	c	c	c	c
	Colombia	c	c	c	c	c	c	c	c
	Croatia	0.52	(0.03)	0.71	(0.06)	**-0.19**	(0.08)	**-0.18**	(0.08)
	Estonia	0.41	(0.03)	0.52	(0.03)	**-0.11**	(0.04)	**-0.10**	(0.04)
	Hong Kong-China	0.37	(0.03)	0.71	(0.03)	**-0.34**	(0.05)	**-0.31**	(0.05)
	Indonesia	c	c	c	c	c	c	c	c
	Israel	0.20	(0.07)	0.31	(0.10)	-0.11	(0.13)	-0.11	(0.13)
	Jordan	1.00	(0.06)	c	c	c	c	c	c
	Kyrgyzstan	c	c	c	c	c	c	c	c
	Latvia	0.32	(0.04)	0.48	(0.06)	**-0.17**	(0.07)	**-0.16**	(0.07)
	Liechtenstein	-0.05	(0.10)	0.14	(0.16)	-0.19	(0.19)	-0.13	(0.19)
	Lithuania	0.30	(0.04)	0.40	(0.07)	-0.09	(0.08)	-0.09	(0.09)
	Macao-China	0.46	(0.03)	0.65	(0.07)	**-0.19**	(0.09)	-0.16	(0.09)
	Montenegro	0.80	(0.07)	c	c	c	c	c	c
	Qatar	c	c	c	c	c	c	c	c
	Romania	0.84	(0.06)	c	c	c	c	c	c
	Russian Federation	0.58	(0.03)	0.69	(0.07)	-0.11	(0.08)	-0.11	(0.09)
	Serbia	0.71	(0.05)	c	c	c	c	c	c
	Slovenia	0.55	(0.04)	0.74	(0.04)	**-0.20**	(0.07)	**-0.17**	(0.07)
	Chinese Taipei	0.51	(0.02)	0.68	(0.02)	**-0.17**	(0.04)	**-0.12**	(0.04)
	Thailand	1.33	(0.05)	c	c	c	c	c	c
	Tunisia	c	c	c	c	c	c	c	c
	Uruguay	0.19	(0.08)	c	c	c	c	c	c

Note: Values that are statistically significant are indicated in bold.
Source: OECD, *PISA 2006 Database.*
Please refer to the Reader's Guide for information on the abbreviations used in this table.
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Table A5.3.

Regular science lessons in school and out-of-school lessons in science for strong performers and top performers

		Regular science lessons in school									
		Percentage of students taking lessons				Hours per week taking science lessons in school					
		Strong performers		Top performers		Strong performers		Top performers		Difference in hours between strong performers and top performers	
		%	S.E.	%	S.E.	Mean	S.E.	Mean	S.E.	Dif.	S.E.
OECD countries	Australia	90.5	(0.8)	95.6	(0.7)	3.67	(0.04)	4.18	(0.05)	**-0.52**	(0.06)
	Austria	91.7	(1.3)	96.4	(1.2)	3.14	(0.09)	3.82	(0.14)	**-0.61**	(0.13)
	Belgium	97.3	(0.5)	99.1	(0.4)	3.36	(0.06)	3.97	(0.07)	**-0.58**	(0.10)
	Canada	94.0	(0.7)	96.4	(0.6)	4.45	(0.06)	4.86	(0.07)	**-0.46**	(0.09)
	Czech Republic	93.2	(1.4)	97.3	(1.3)	3.77	(0.10)	4.93	(0.11)	**-1.18**	(0.13)
	Denmark	99.0	(0.5)	99.7	(0.4)	3.51	(0.06)	3.76	(0.11)	**-0.23**	(0.11)
	Finland	98.0	(0.5)	99.1	(0.3)	3.28	(0.05)	3.80	(0.06)	**-0.49**	(0.08)
	France	98.7	(0.4)	99.8	(0.5)	4.02	(0.08)	4.82	(0.09)	**-0.87**	(0.14)
	Germany	96.3	(0.9)	98.2	(0.8)	3.69	(0.07)	4.48	(0.10)	**-0.74**	(0.12)
	Greece	99.5	(0.3)	100.0	(0.0)	4.23	(0.07)	4.77	(0.15)	**-0.56**	(0.19)
	Hungary	91.9	(1.5)	94.4	(2.1)	3.13	(0.09)	3.92	(0.14)	**-0.82**	(0.19)
	Iceland	98.7	(0.6)	98.6	(0.9)	3.27	(0.05)	3.37	(0.10)	-0.13	(0.14)
	Ireland	92.7	(1.1)	95.9	(1.4)	2.80	(0.05)	3.15	(0.08)	**-0.28**	(0.11)
	Italy	90.8	(2.1)	88.6	(3.5)	3.57	(0.09)	3.64	(0.18)	-0.15	(0.14)
	Japan	97.7	(0.9)	99.2	(0.5)	2.88	(0.07)	3.23	(0.08)	**-0.32**	(0.07)
	Korea	98.6	(0.6)	99.3	(0.5)	3.87	(0.09)	4.03	(0.23)	-0.09	(0.18)
	Luxembourg	95.4	(0.9)	98.7	(1.0)	2.93	(0.07)	3.17	(0.11)	-0.30	(0.16)
	Mexico	87.0	(2.7)	c	c	3.76	(0.15)	c	c	c	c
	Netherlands	85.0	(1.2)	91.9	(1.5)	2.72	(0.06)	3.58	(0.12)	**-0.86**	(0.13)
	New Zealand	96.0	(0.7)	97.9	(0.6)	4.49	(0.05)	5.01	(0.05)	**-0.48**	(0.08)
	Norway	99.5	(0.3)	99.6	(0.7)	2.82	(0.04)	2.88	(0.05)	-0.02	(0.07)
	Poland	99.2	(0.4)	98.7	(0.7)	3.24	(0.06)	3.55	(0.09)	**-0.29**	(0.12)
	Portugal	86.7	(1.7)	94.1	(2.2)	4.55	(0.09)	5.53	(0.15)	**-1.00**	(0.21)
	Slovak Republic	96.6	(1.1)	99.6	(0.4)	3.59	(0.13)	4.69	(0.14)	**-1.03**	(0.22)
	Spain	95.0	(0.7)	97.6	(0.9)	4.08	(0.06)	4.86	(0.11)	**-0.83**	(0.16)
	Sweden	98.5	(0.7)	99.1	(0.7)	2.98	(0.04)	3.11	(0.06)	-0.10	(0.08)
	Switzerland	93.5	(0.9)	98.4	(0.7)	2.96	(0.06)	3.95	(0.10)	**-1.00**	(0.13)
	Turkey	97.8	(2.3)	c	c	5.57	(0.14)	c	c	c	c
	United Kingdom	99.1	(0.3)	99.4	(0.2)	4.69	(0.04)	5.20	(0.06)	**-0.49**	(0.08)
	United States	96.3	(1.0)	97.1	(1.1)	4.31	(0.06)	4.74	(0.09)	**-0.35**	(0.13)
	OECD average	95.3	(0.2)	97.5	(0.2)	3.57	(0.01)	4.11	(0.02)	**-0.53**	(0.03)
Partner countries and economies	Argentina	96.8	(1.6)	c	c	3.94	(0.23)	c	c	c	c
	Azerbaijan	c	c	c	c	c	c	c	c	c	c
	Brazil	99.4	(0.7)	c	c	4.13	(0.13)	c	c	c	c
	Bulgaria	97.3	(1.0)	97.5	(1.5)	3.68	(0.13)	4.25	(0.22)	-0.42	(0.22)
	Chile	96.7	(0.9)	c	c	3.77	(0.13)	c	c	c	c
	Colombia	c	c	c	c	c	c	c	c	c	c
	Croatia	91.5	(1.1)	95.1	(1.7)	2.62	(0.07)	2.77	(0.14)	-0.21	(0.18)
	Estonia	98.9	(0.5)	99.3	(0.4)	3.74	(0.06)	4.54	(0.10)	**-0.83**	(0.11)
	Hong Kong-China	71.7	(1.6)	82.8	(1.8)	3.81	(0.10)	4.90	(0.11)	**-1.20**	(0.16)
	Indonesia	c	c	c	c	c	c	c	c	c	c
	Israel	85.9	(2.4)	91.1	(3.0)	3.31	(0.12)	4.11	(0.15)	**-0.69**	(0.21)
	Jordan	98.0	(1.4)	c	c	4.70	(0.15)	c	c	c	c
	Kyrgyzstan	c	c	c	c	c	c	c	c	c	c
	Latvia	97.6	(0.8)	97.9	(1.5)	3.63	(0.09)	4.07	(0.21)	**-0.62**	(0.29)
	Liechtenstein	100.0	(0.0)	100.0	(0.0)	2.81	(0.17)	4.15	(0.27)	**-1.21**	(0.44)
	Lithuania	99.3	(0.4)	99.9	(0.2)	3.26	(0.07)	3.70	(0.10)	**-0.42**	(0.16)
	Macao-China	90.4	(1.0)	93.0	(1.9)	4.59	(0.07)	5.27	(0.14)	**-0.62**	(0.26)
	Montenegro	98.8	(1.0)	c	c	4.48	(0.17)	c	c	c	c
	Qatar	c	c	c	c	c	c	c	c	c	c
	Romania	97.9	(1.0)	c	c	4.17	(0.17)	c	c	c	c
	Russian Federation	97.6	(0.7)	99.3	(0.7)	4.60	(0.10)	5.28	(0.12)	**-0.49**	(0.21)
	Serbia	98.6	(0.8)	c	c	4.43	(0.10)	c	c	c	c
	Slovenia	96.1	(1.0)	98.4	(0.9)	3.43	(0.07)	4.40	(0.09)	**-0.88**	(0.15)
	Chinese Taipei	94.2	(1.2)	97.8	(0.8)	3.43	(0.07)	3.79	(0.06)	**-0.36**	(0.09)
	Thailand	100.0	(0.0)	c	c	5.81	(0.13)	c	c	c	c
	Tunisia	c	c	c	c	c	c	c	c	c	c
	Uruguay	92.7	(1.8)	c	c	3.59	(0.13)	c	c	c	c

Note: Values that are statistically significant are indicated in bold.
Source: OECD, *PISA 2006 Database.*
Please refer to the Reader's Guide for information on the abbreviations used in this table.
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Table A5.3. *(continued)*

Regular science lessons in school and out-of-school lessons in science for strong performers and top performers

	Out-of-school lessons in science									
	Percentage of students taking lessons				Hours per week taking out-of-school lessons in science					
	Strong performers		Top performers		Strong performers		Top performers		Difference in hours between strong performers and top performers	
	%	S.E.	%	S.E.	Mean	S.E.	Mean	S.E.	Dif.	S.E.
OECD countries										
Australia	21.9	(1.0)	17.8	(1.1)	0.34	(0.02)	0.26	(0.02)	**0.07**	(0.03)
Austria	4.7	(0.8)	3.8	(1.2)	0.07	(0.02)	0.05	(0.02)	0.01	(0.03)
Belgium	14.4	(0.9)	9.1	(1.2)	0.21	(0.02)	0.14	(0.02)	**0.08**	(0.03)
Canada	30.3	(1.2)	23.3	(1.6)	0.50	(0.03)	0.36	(0.03)	**0.14**	(0.04)
Czech Republic	32.4	(1.8)	33.1	(2.3)	0.53	(0.04)	0.51	(0.05)	0.02	(0.06)
Denmark	53.8	(2.1)	48.9	(4.4)	0.78	(0.04)	0.72	(0.08)	0.06	(0.09)
Finland	20.5	(1.6)	13.7	(1.7)	0.27	(0.03)	0.19	(0.03)	0.08	(0.05)
France	32.6	(2.0)	21.7	(3.3)	0.51	(0.04)	0.34	(0.06)	**0.17**	(0.08)
Germany	20.6	(1.6)	15.7	(1.7)	0.32	(0.03)	0.22	(0.03)	**0.11**	(0.04)
Greece	77.3	(2.1)	75.2	(4.8)	2.41	(0.10)	2.52	(0.25)	-0.11	(0.26)
Hungary	49.8	(2.3)	52.6	(3.6)	0.91	(0.05)	1.00	(0.08)	-0.09	(0.09)
Iceland	14.5	(1.5)	9.2	(2.2)	0.20	(0.03)	0.13	(0.03)	0.08	(0.04)
Ireland	15.6	(1.3)	11.3	(2.2)	0.22	(0.02)	0.17	(0.04)	0.05	(0.05)
Italy	20.7	(1.4)	17.9	(2.8)	0.36	(0.03)	0.32	(0.06)	0.04	(0.08)
Japan	15.4	(1.2)	12.8	(1.5)	0.20	(0.02)	0.15	(0.02)	0.05	(0.03)
Korea	59.3	(2.6)	59.1	(4.6)	1.29	(0.07)	1.39	(0.18)	-0.10	(0.16)
Luxembourg	18.0	(1.6)	14.0	(2.5)	0.26	(0.03)	0.22	(0.05)	0.04	(0.06)
Mexico	31.3	(3.2)	c	c	0.61	(0.09)	c	c	c	c
Netherlands	29.4	(1.6)	19.3	(2.3)	0.46	(0.03)	0.25	(0.03)	**0.20**	(0.05)
New Zealand	21.8	(1.6)	19.3	(1.7)	0.34	(0.03)	0.29	(0.03)	0.05	(0.04)
Norway	52.8	(2.2)	47.3	(3.6)	0.71	(0.04)	0.67	(0.08)	0.04	(0.08)
Poland	37.7	(1.9)	40.2	(2.9)	0.55	(0.04)	0.66	(0.07)	-0.11	(0.09)
Portugal	26.7	(2.2)	21.3	(3.9)	0.57	(0.05)	0.47	(0.11)	0.10	(0.12)
Slovak Republic	50.1	(2.7)	50.4	(2.8)	0.89	(0.06)	0.92	(0.09)	-0.03	(0.10)
Spain	21.5	(1.5)	13.9	(2.3)	0.47	(0.05)	0.28	(0.06)	**0.19**	(0.07)
Sweden	25.5	(1.9)	16.7	(2.8)	0.33	(0.03)	0.20	(0.04)	**0.13**	(0.04)
Switzerland	21.0	(1.4)	16.4	(1.8)	0.32	(0.02)	0.28	(0.05)	0.04	(0.06)
Turkey	75.4	(5.6)	c	c	2.90	(0.18)	c	c	c	c
United Kingdom	29.8	(1.5)	24.2	(1.9)	0.42	(0.03)	0.33	(0.03)	0.08	(0.04)
United States	39.1	(2.2)	29.8	(2.6)	0.66	(0.06)	0.47	(0.06)	0.18	(0.10)
OECD average	30.6	(0.3)	26.4	(0.5)	0.54	(0.01)	0.48	(0.01)	**0.06**	(0.02)
Partner countries and economies										
Argentina	14.5	(4.4)	c	c	0.24	(0.09)	c	c	c	c
Azerbaijan	c	c	c	c	c	c	c	c	c	c
Brazil	42.4	(2.3)	43.2	(4.9)	0.83	(0.07)	0.69	(0.12)	0.13	(0.13)
Bulgaria	57.1	(4.9)	c	c	1.09	(0.15)	c	c	c	c
Chile	44.1	(3.4)	c	c	0.77	(0.07)	c	c	c	c
Colombia	c	c	c	c	c	c	c	c	c	c
Croatia	36.6	(1.7)	27.8	(2.8)	0.55	(0.04)	0.43	(0.05)	0.13	(0.08)
Estonia	43.4	(1.7)	49.4	(2.3)	1.06	(0.06)	1.17	(0.09)	-0.11	(0.11)
Hong Kong-China	19.7	(1.3)	14.2	(2.2)	0.33	(0.03)	0.19	(0.04)	**0.14**	(0.05)
Indonesia	c	c	c	c	c	c	c	c	c	c
Israel	46.4	(2.7)	41.7	(4.0)	0.93	(0.08)	0.73	(0.11)	0.20	(0.14)
Jordan	59.3	(4.6)	c	c	1.43	(0.16)	c	c	c	c
Kyrgyzstan	c	c	c	c	c	c	c	c	c	c
Latvia	20.7	(5.4)	12.0	(4.5)	0.35	(0.11)	0.19	(0.10)	0.17	(0.15)
Liechtenstein	26.1	(2.5)	23.4	(4.9)	0.36	(0.04)	0.29	(0.06)	0.07	(0.07)
Lithuania	33.1	(2.3)	35.9	(5.3)	0.54	(0.05)	0.63	(0.14)	-0.09	(0.16)
Macao-China	46.3	(2.2)	51.1	(3.6)	0.97	(0.08)	1.14	(0.19)	-0.17	(0.24)
Montenegro	39.8	(5.1)	c	c	0.73	(0.15)	c	c	c	c
Qatar	c	c	c	c	c	c	c	c	c	c
Romania	54.8	(6.7)	c	c	1.02	(0.13)	c	c	c	c
Russian Federation	54.9	(2.0)	61.2	(4.2)	1.08	(0.06)	1.33	(0.14)	-0.25	(0.15)
Serbia	37.3	(3.3)	c	c	0.72	(0.11)	c	c	c	c
Slovenia	40.1	(2.0)	36.3	(3.0)	0.64	(0.04)	0.52	(0.05)	0.12	(0.08)
Chinese Taipei	38.4	(1.5)	37.4	(1.7)	0.95	(0.04)	1.01	(0.05)	-0.06	(0.07)
Thailand	68.2	(4.8)	c	c	2.33	(0.25)	c	c	c	c
Tunisia	c	c	c	c	c	c	c	c	c	c
Uruguay	23.2	(2.8)	c	c	0.43	(0.08)	c	c	c	c

Note: Values that are statistically significant are indicated in bold.
Source: OECD, *PISA 2006 Database.*
Please refer to the Reader's Guide for information on the abbreviations used in this table.
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Table A5.4a.

Indices of instrumental motivation and future-oriented motivation to learn science for strong performers and top performers

		Index of instrumental motivation to learn science						Index of future-oriented motivation to learn science					
		Strong performers		Top performers		Difference in the mean index between strong performers and top performers		Strong performers		Top performers		Difference in the mean index between strong performers and top performers	
		Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD countries	Australia	0.31	(0.03)	0.65	(0.03)	**-0.33**	(0.05)	0.13	(0.02)	0.54	(0.03)	**-0.41**	(0.03)
	Austria	-0.33	(0.06)	-0.13	(0.07)	**-0.20**	(0.09)	-0.15	(0.05)	0.18	(0.07)	**-0.33**	(0.09)
	Belgium	-0.10	(0.03)	0.18	(0.04)	**-0.29**	(0.05)	0.19	(0.03)	0.62	(0.04)	**-0.43**	(0.05)
	Canada	0.46	(0.03)	0.79	(0.04)	**-0.33**	(0.04)	0.36	(0.02)	0.79	(0.03)	**-0.44**	(0.04)
	Czech Republic	-0.21	(0.04)	-0.02	(0.05)	**-0.19**	(0.05)	-0.09	(0.04)	0.16	(0.05)	**-0.25**	(0.05)
	Denmark	0.25	(0.04)	0.50	(0.08)	**-0.24**	(0.10)	0.10	(0.05)	0.51	(0.09)	**-0.40**	(0.12)
	Finland	-0.15	(0.03)	0.24	(0.03)	**-0.39**	(0.04)	-0.11	(0.03)	0.29	(0.04)	**-0.39**	(0.05)
	France	0.22	(0.03)	0.68	(0.05)	**-0.46**	(0.07)	0.28	(0.04)	0.83	(0.06)	**-0.54**	(0.08)
	Germany	-0.01	(0.04)	0.27	(0.05)	**-0.27**	(0.06)	-0.01	(0.04)	0.38	(0.06)	**-0.38**	(0.09)
	Greece	0.28	(0.06)	0.50	(0.11)	-0.22	(0.14)	0.43	(0.05)	0.81	(0.12)	**-0.38**	(0.13)
	Hungary	-0.07	(0.05)	0.23	(0.08)	**-0.30**	(0.09)	0.17	(0.04)	0.56	(0.09)	**-0.39**	(0.09)
	Iceland	0.49	(0.05)	0.86	(0.07)	**-0.37**	(0.09)	0.39	(0.04)	0.81	(0.08)	**-0.42**	(0.09)
	Ireland	0.42	(0.04)	0.71	(0.05)	**-0.29**	(0.07)	0.24	(0.04)	0.64	(0.06)	**-0.39**	(0.08)
	Italy	0.30	(0.03)	0.48	(0.05)	**-0.17**	(0.06)	0.39	(0.03)	0.69	(0.06)	**-0.30**	(0.06)
	Japan	-0.27	(0.03)	0.16	(0.04)	**-0.42**	(0.05)	-0.10	(0.03)	0.32	(0.04)	**-0.42**	(0.05)
	Korea	-0.06	(0.04)	0.23	(0.10)	**-0.29**	(0.09)	-0.05	(0.04)	0.33	(0.10)	**-0.38**	(0.08)
	Luxembourg	-0.02	(0.04)	0.27	(0.08)	**-0.28**	(0.09)	0.15	(0.04)	0.55	(0.08)	**-0.39**	(0.09)
	Mexico	0.60	(0.06)	c	c	c	c	0.66	(0.06)	c	c	c	c
	Netherlands	-0.18	(0.04)	0.18	(0.05)	**-0.36**	(0.06)	-0.15	(0.03)	0.36	(0.05)	**-0.52**	(0.07)
	New Zealand	0.31	(0.04)	0.64	(0.04)	**-0.33**	(0.07)	0.14	(0.04)	0.56	(0.04)	**-0.41**	(0.05)
	Norway	0.09	(0.05)	0.44	(0.07)	**-0.35**	(0.10)	0.05	(0.04)	0.43	(0.07)	**-0.38**	(0.08)
	Poland	0.18	(0.04)	0.36	(0.05)	**-0.18**	(0.07)	0.21	(0.03)	0.44	(0.06)	**-0.22**	(0.07)
	Portugal	1.02	(0.04)	1.19	(0.09)	-0.18	(0.11)	0.73	(0.05)	1.16	(0.10)	**-0.43**	(0.11)
	Slovak Republic	-0.12	(0.04)	0.03	(0.06)	**-0.16**	(0.07)	0.18	(0.05)	0.34	(0.08)	**-0.16**	(0.11)
	Spain	0.44	(0.04)	0.79	(0.05)	**-0.35**	(0.06)	0.50	(0.03)	0.95	(0.05)	**-0.45**	(0.05)
	Sweden	0.17	(0.04)	0.62	(0.06)	**-0.45**	(0.07)	0.03	(0.03)	0.51	(0.05)	**-0.48**	(0.06)
	Switzerland	-0.12	(0.03)	0.26	(0.04)	**-0.38**	(0.05)	-0.06	(0.04)	0.46	(0.05)	**-0.52**	(0.07)
	Turkey	0.78	(0.08)	c	c	c	c	1.14	(0.09)	c	c	c	c
	United Kingdom	0.30	(0.03)	0.64	(0.04)	**-0.35**	(0.05)	0.04	(0.04)	0.49	(0.04)	**-0.45**	(0.05)
	United States	0.44	(0.03)	0.65	(0.06)	**-0.22**	(0.07)	0.37	(0.04)	0.68	(0.06)	**-0.31**	(0.07)
	OECD average	0.14	(0.01)	0.44	(0.01)	**-0.30**	(0.01)	0.16	(0.01)	0.55	(0.01)	**-0.39**	(0.01)
Partner countries and economies	Argentina	0.44	(0.12)	c	c	c	c	0.43	(0.11)	c	c	c	c
	Azerbaijan	c	c	c	c	c	c	c	c	c	c	c	c
	Brazil	0.50	(0.10)	c	c	c	c	0.47	(0.10)	c	c	c	c
	Bulgaria	0.32	(0.05)	0.40	(0.10)	-0.08	(0.12)	0.36	(0.06)	0.47	(0.12)	-0.11	(0.13)
	Chile	0.72	(0.08)	c	c	c	c	0.56	(0.08)	c	c	c	c
	Colombia	c	c	c	c	c	c	c	c	c	c	c	c
	Croatia	0.08	(0.04)	0.19	(0.07)	-0.12	(0.08)	0.31	(0.04)	0.52	(0.08)	**-0.21**	(0.08)
	Estonia	0.04	(0.03)	0.19	(0.04)	**-0.14**	(0.05)	-0.07	(0.03)	0.17	(0.04)	**-0.23**	(0.05)
	Hong Kong-China	0.22	(0.04)	0.48	(0.04)	**-0.26**	(0.05)	0.38	(0.04)	0.70	(0.03)	**-0.32**	(0.05)
	Indonesia	c	c	c	c	c	c	c	c	c	c	c	c
	Israel	-0.68	(0.06)	-0.87	(0.07)	**0.19**	(0.08)	0.60	(0.06)	0.86	(0.07)	**-0.25**	(0.09)
	Jordan	1.12	(0.05)	c	c	c	c	1.46	(0.06)	c	c	c	c
	Kyrgyzstan	c	c	c	c	c	c	c	c	c	c	c	c
	Latvia	0.05	(0.04)	0.18	(0.08)	-0.13	(0.08)	0.00	(0.05)	0.23	(0.08)	**-0.23**	(0.09)
	Liechtenstein	-0.35	(0.13)	0.14	(0.16)	**-0.48**	(0.22)	-0.26	(0.11)	0.22	(0.20)	**-0.47**	(0.26)
	Lithuania	0.42	(0.04)	0.57	(0.07)	-0.15	(0.08)	0.24	(0.04)	0.46	(0.07)	**-0.22**	(0.07)
	Macao-China	0.54	(0.04)	0.76	(0.08)	**-0.22**	(0.09)	0.26	(0.03)	0.51	(0.07)	**-0.25**	(0.08)
	Montenegro	0.29	(0.11)	c	c	c	c	0.30	(0.13)	c	c	c	c
	Qatar	c	c	c	c	c	c	c	c	c	c	c	c
	Romania	0.44	(0.09)	c	c	c	c	0.57	(0.07)	c	c	c	c
	Russian Federation	0.11	(0.04)	0.18	(0.06)	-0.07	(0.07)	0.26	(0.04)	0.40	(0.07)	-0.14	(0.08)
	Serbia	0.14	(0.08)	c	c	c	c	0.45	(0.07)	c	c	c	c
	Slovenia	0.09	(0.04)	0.28	(0.06)	**-0.19**	(0.08)	0.10	(0.04)	0.46	(0.06)	**-0.35**	(0.08)
	Chinese Taipei	0.35	(0.02)	0.56	(0.03)	**-0.21**	(0.04)	0.25	(0.02)	0.50	(0.04)	**-0.25**	(0.04)
	Thailand	1.07	(0.07)	c	c	c	c	1.09	(0.09)	c	c	c	c
	Tunisia	c	c	c	c	c	c	c	c	c	c	c	c
	Uruguay	0.26	(0.06)	c	c	c	c	0.29	(0.07)	c	c	c	c

Note: Values that are statistically significant are indicated in bold.
Source: OECD, *PISA 2006 Database.*
Please refer to the Reader's Guide for information on the abbreviations used in this table.
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A5

Table A5.5.

Importance of doing well in science, mathematics and reading for strong performers and top performers

		Students reporting doing well in science is very important				Students reporting doing well in mathematics is very important				Students reporting doing well in reading is very important			
		Strong performers		Top performers		Strong performers		Top performers		Strong performers		Top performers	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD countries	Australia	38.7	(1.3)	52.2	(1.3)	66.2	(1.3)	68.4	(1.4)	66.3	(1.1)	62.6	(1.6)
	Austria	22.8	(1.8)	33.9	(2.8)	54.4	(1.9)	55.2	(3.0)	49.8	(2.2)	46.3	(3.3)
	Belgium	22.7	(1.2)	31.9	(2.0)	51.5	(1.4)	59.8	(2.1)	30.0	(1.5)	23.0	(2.0)
	Canada	46.4	(1.2)	60.3	(1.6)	70.1	(1.3)	75.3	(1.4)	52.4	(1.4)	48.2	(1.6)
	Czech Republic	16.1	(1.7)	22.9	(2.1)	51.7	(2.1)	49.6	(2.2)	47.7	(1.9)	37.7	(2.2)
	Denmark	29.6	(2.1)	39.1	(3.7)	67.8	(2.4)	72.2	(3.9)	67.0	(1.6)	60.2	(2.9)
	Finland	11.8	(1.0)	25.0	(1.6)	34.0	(1.4)	50.6	(1.6)	28.2	(1.5)	30.6	(1.8)
	France	37.9	(1.8)	60.6	(3.1)	55.1	(2.3)	62.7	(3.7)	32.8	(1.8)	25.6	(2.7)
	Germany	28.6	(1.6)	36.9	(2.4)	62.3	(1.6)	63.3	(2.4)	49.9	(1.7)	39.6	(2.0)
	Greece	49.9	(2.2)	64.5	(4.0)	64.4	(2.0)	71.4	(4.3)	45.1	(2.3)	39.0	(5.1)
	Hungary	18.3	(1.7)	33.4	(3.0)	35.7	(2.3)	45.9	(3.5)	39.2	(1.8)	33.8	(3.3)
	Iceland	51.1	(2.1)	63.4	(3.0)	83.6	(1.8)	88.2	(2.8)	57.2	(2.1)	53.8	(3.8)
	Ireland	39.8	(2.0)	51.4	(3.0)	71.3	(1.8)	75.2	(2.6)	59.3	(2.4)	51.0	(3.5)
	Italy	34.1	(2.0)	44.3	(3.0)	56.4	(2.2)	58.9	(3.3)	49.9	(1.6)	42.2	(3.4)
	Japan	29.2	(1.4)	39.1	(1.6)	58.5	(1.8)	67.2	(1.9)	50.2	(1.6)	47.7	(2.3)
	Korea	30.3	(1.8)	39.1	(3.9)	68.5	(1.6)	74.6	(2.5)	59.7	(1.9)	62.0	(4.8)
	Luxembourg	31.4	(1.9)	43.3	(3.5)	49.9	(2.1)	58.9	(3.8)	42.8	(2.0)	44.0	(4.4)
	Mexico	48.2	(3.6)	c	c	82.7	(2.2)	c	c	58.2	(3.7)	c	c
	Netherlands	25.3	(1.9)	35.9	(2.8)	40.2	(1.7)	42.4	(2.4)	30.3	(2.0)	17.0	(1.8)
	New Zealand	36.8	(1.9)	52.0	(2.3)	67.0	(1.5)	70.5	(1.9)	59.2	(2.0)	57.0	(2.0)
	Norway	37.0	(2.9)	47.1	(4.8)	67.0	(2.4)	74.5	(4.2)	44.8	(2.3)	38.6	(3.5)
	Poland	31.1	(1.6)	41.2	(3.1)	48.4	(2.0)	52.4	(3.2)	47.9	(1.9)	39.4	(3.1)
	Portugal	66.6	(2.5)	78.8	(4.5)	68.9	(2.2)	76.6	(4.1)	25.9	(2.0)	16.4	(5.7)
	Slovak Republic	20.0	(1.7)	31.9	(2.7)	55.2	(2.4)	58.1	(3.2)	53.9	(2.6)	40.5	(4.0)
	Spain	54.0	(2.3)	69.8	(2.5)	67.0	(1.4)	74.5	(2.5)	42.9	(1.2)	39.5	(3.1)
	Sweden	34.0	(1.8)	53.1	(3.2)	58.5	(2.0)	66.6	(3.4)	58.7	(2.5)	54.5	(3.2)
	Switzerland	20.4	(1.7)	35.0	(2.4)	55.0	(1.7)	50.6	(3.1)	44.9	(1.5)	31.7	(2.1)
	Turkey	61.0	(3.6)	c	c	78.6	(3.3)	c	c	32.3	(3.6)	c	c
	United Kingdom	43.6	(1.7)	57.5	(2.0)	66.3	(1.8)	67.2	(1.8)	66.3	(1.2)	55.4	(1.9)
	United States	50.3	(1.7)	60.6	(2.7)	71.0	(2.1)	75.6	(2.5)	59.3	(2.4)	55.1	(3.0)
	OECD average	*34.2*	*(0.3)*	*46.6*	*(0.6)*	*59.5*	*(0.4)*	*64.5*	*(0.6)*	*48.6*	*(0.4)*	*42.6*	*(0.6)*
Partner countries and economies	Argentina	45.4	(4.9)	c	c	59.3	(4.8)	c	c	38.8	(4.1)	c	c
	Azerbaijan	c	c	c	c	c	c	c	c	c	c	c	c
	Brazil	45.7	(4.1)	c	c	63.5	(4.5)	c	c	58.7	(4.3)	c	c
	Bulgaria	35.5	(2.4)	39.5	(5.8)	71.8	(2.6)	73.7	(3.3)	68.1	(3.2)	55.0	(8.2)
	Chile	57.2	(3.9)	c	c	81.7	(2.6)	c	c	60.7	(3.3)	c	c
	Colombia	c	c	c	c	c	c	c	c	c	c	c	c
	Croatia	22.0	(1.7)	29.2	(3.4)	40.7	(2.4)	40.8	(3.6)	41.2	(2.2)	34.4	(3.5)
	Estonia	26.8	(1.7)	34.5	(2.5)	61.5	(1.9)	68.4	(2.8)	56.1	(1.9)	51.4	(3.0)
	Hong Kong-China	40.3	(1.7)	56.9	(2.1)	59.7	(1.9)	67.2	(1.7)	55.4	(1.8)	48.7	(1.8)
	Indonesia	c	c	c	c	c	c	c	c	c	c	c	c
	Israel	45.3	(2.8)	52.0	(3.9)	75.6	(2.4)	74.2	(3.1)	40.0	(2.6)	33.2	(3.6)
	Jordan	79.1	(2.6)	c	c	80.3	(2.7)	c	c	41.8	(4.5)	c	c
	Kyrgyzstan	c	c	c	c	c	c	c	c	c	c	c	c
	Latvia	18.3	(1.7)	29.9	(4.1)	64.4	(2.6)	70.1	(4.7)	46.6	(2.4)	42.2	(3.6)
	Liechtenstein	23.3	(6.4)	20.0	(6.0)	48.2	(5.9)	43.2	(7.4)	36.0	(6.0)	36.2	(8.2)
	Lithuania	39.7	(2.6)	50.4	(4.6)	72.6	(1.9)	75.4	(4.9)	64.0	(2.3)	58.8	(3.9)
	Macao-China	36.5	(2.3)	47.8	(5.2)	41.1	(2.1)	41.1	(5.7)	58.3	(2.4)	55.7	(4.8)
	Montenegro	36.8	(7.3)	c	c	41.9	(6.6)	c	c	53.4	(6.5)	c	c
	Qatar	c	c	c	c	c	c	c	c	c	c	c	c
	Romania	35.3	(5.3)	c	c	59.8	(5.7)	c	c	57.1	(4.7)	c	c
	Russian Federation	23.7	(1.9)	29.1	(4.2)	58.9	(2.4)	63.2	(3.9)	53.2	(2.3)	47.1	(3.9)
	Serbia	30.0	(3.9)	c	c	44.3	(3.4)	c	c	37.8	(3.4)	c	c
	Slovenia	22.5	(1.6)	34.3	(2.8)	46.5	(2.0)	52.3	(2.8)	44.2	(1.7)	41.0	(2.6)
	Chinese Taipei	32.8	(1.3)	45.5	(2.0)	52.1	(1.3)	60.8	(1.6)	45.7	(1.2)	45.3	(1.6)
	Thailand	85.4	(3.4)	c	c	82.8	(3.2)	c	c	32.3	(5.9)	c	c
	Tunisia	c	c	c	c	c	c	c	c	c	c	c	c
	Uruguay	44.0	(3.1)	c	c	68.7	(3.8)	c	c	38.4	(4.1)	c	c

Source: OECD, *PISA 2006 Database.*
Please refer to the Reader's Guide for information on the abbreviations used in this table.
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Table A5.5. *(continued)*

Importance of doing well in science, mathematics and reading for strong performers and top performers

	Students reporting doing well in science is very important or important				Students reporting doing well in mathematics is very important or important				Students reporting doing well in reading is very important or important			
	Strong performers		Top performers		Strong performers		Top performers		Strong performers		Top performers	
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD countries												
Australia	82.2	(1.0)	91.3	(0.9)	95.6	(0.5)	96.3	(0.6)	95.1	(0.6)	94.8	(0.7)
Austria	70.0	(2.2)	76.5	(2.7)	91.5	(1.1)	92.2	(1.2)	87.0	(1.4)	83.2	(2.4)
Belgium	72.2	(1.3)	84.3	(1.4)	93.3	(1.0)	93.3	(1.2)	78.1	(1.2)	68.2	(2.2)
Canada	88.8	(0.9)	94.1	(0.8)	96.0	(0.6)	97.0	(0.7)	90.3	(0.7)	86.8	(1.2)
Czech Republic	60.1	(2.3)	71.3	(2.4)	90.3	(1.2)	89.1	(1.3)	89.9	(1.0)	83.0	(1.7)
Denmark	78.3	(1.7)	86.5	(2.4)	97.6	(0.7)	97.6	(1.3)	95.2	(0.9)	93.4	(2.4)
Finland	67.9	(1.5)	81.7	(1.7)	88.7	(1.0)	93.3	(0.9)	81.2	(1.3)	80.1	(1.6)
France	79.3	(1.6)	89.5	(1.5)	91.0	(1.0)	92.5	(1.4)	76.4	(1.5)	69.6	(2.8)
Germany	80.2	(1.6)	88.7	(1.8)	94.4	(0.7)	95.2	(1.2)	90.7	(1.1)	84.8	(1.6)
Greece	85.6	(1.6)	92.0	(3.3)	89.7	(1.3)	95.0	(1.9)	78.6	(1.9)	75.5	(5.1)
Hungary	68.5	(2.2)	78.8	(3.3)	85.7	(1.4)	87.1	(2.3)	81.9	(1.8)	76.8	(3.4)
Iceland	83.8	(1.7)	93.3	(2.2)	98.8	(0.5)	99.0	(0.7)	89.0	(1.4)	90.8	(1.9)
Ireland	86.2	(1.4)	92.1	(1.4)	96.0	(0.8)	95.3	(1.1)	92.0	(1.1)	86.3	(1.9)
Italy	87.7	(1.0)	93.0	(1.3)	92.3	(1.1)	95.7	(1.1)	90.9	(0.9)	87.9	(1.5)
Japan	76.3	(1.4)	84.7	(1.4)	91.6	(0.9)	94.2	(1.0)	88.5	(1.0)	86.2	(1.4)
Korea	82.2	(1.5)	85.9	(2.2)	91.4	(0.9)	94.4	(1.3)	93.4	(1.0)	91.8	(2.1)
Luxembourg	73.2	(1.7)	84.0	(2.3)	84.8	(1.4)	89.3	(2.5)	82.1	(1.3)	81.1	(2.6)
Mexico	93.4	(1.3)	c	c	98.8	(0.6)	c	c	93.5	(1.7)	c	c
Netherlands	76.4	(1.8)	85.1	(2.3)	92.5	(1.0)	94.6	(1.3)	83.4	(1.7)	70.7	(2.3)
New Zealand	82.8	(1.9)	90.5	(1.1)	96.2	(0.9)	97.0	(0.8)	93.1	(0.8)	91.8	(0.9)
Norway	87.9	(1.4)	94.2	(1.6)	95.4	(0.8)	98.0	(1.1)	84.7	(2.1)	84.7	(3.3)
Poland	81.5	(1.6)	84.0	(2.1)	90.6	(1.1)	90.2	(2.1)	87.7	(1.2)	82.7	(2.5)
Portugal	94.8	(1.2)	97.0	(1.7)	97.0	(1.0)	98.3	(1.5)	80.4	(2.2)	73.6	(4.5)
Slovak Republic	72.3	(2.2)	80.9	(2.9)	91.0	(1.1)	91.4	(1.9)	90.8	(1.3)	80.6	(2.7)
Spain	87.4	(1.3)	95.1	(1.2)	94.2	(0.9)	95.1	(1.7)	81.1	(1.2)	79.0	(2.2)
Sweden	80.5	(1.6)	91.7	(1.6)	95.0	(0.9)	96.9	(1.1)	93.2	(1.2)	91.9	(1.8)
Switzerland	72.6	(1.5)	86.8	(1.6)	91.0	(0.9)	89.1	(1.9)	86.9	(1.2)	81.1	(1.9)
Turkey	92.1	(1.7)	c	c	96.4	(1.7)	c	c	81.8	(2.6)	c	c
United Kingdom	89.5	(1.2)	93.7	(1.1)	96.3	(0.6)	96.8	(0.6)	95.1	(0.9)	90.9	(1.3)
United States	88.7	(1.2)	93.6	(1.5)	95.3	(0.9)	97.0	(0.8)	89.7	(1.4)	87.3	(1.8)
OECD average	*79.9*	*(0.3)*	*87.9*	*(0.4)*	*93.0*	*(0.2)*	*94.3*	*(0.3)*	*87.4*	*(0.2)*	*83.4*	*(0.5)*
Partner countries and economies												
Argentina	90.1	(3.5)	c	c	92.0	(2.7)	c	c	83.5	(3.4)	c	c
Azerbaijan	c	c	c	c	c	c	c	c	c	c	c	c
Brazil	93.7	(1.9)	c	c	93.2	(2.3)	c	c	91.5	(2.6)	c	c
Bulgaria	88.3	(2.2)	90.7	(2.8)	93.6	(1.6)	93.0	(2.5)	95.4	(1.2)	86.4	(5.2)
Chile	93.4	(1.2)	c	c	98.1	(0.7)	c	c	89.2	(1.7)	c	c
Colombia	c	c	c	c	c	c	c	c	c	c	c	c
Croatia	69.0	(2.1)	78.2	(3.4)	79.8	(2.1)	85.2	(3.0)	81.2	(1.5)	74.3	(2.8)
Estonia	85.1	(1.4)	89.6	(1.4)	93.1	(1.0)	95.2	(1.1)	92.9	(0.9)	91.0	(1.4)
Hong Kong-China	74.8	(1.5)	87.5	(1.4)	95.1	(0.8)	97.2	(0.7)	91.1	(1.0)	89.8	(1.2)
Indonesia	c	c	c	c	c	c	c	c	c	c	c	c
Israel	79.8	(2.0)	86.6	(3.0)	95.8	(1.1)	93.2	(2.4)	81.8	(1.9)	72.2	(3.2)
Jordan	98.7	(0.7)	c	c	97.8	(1.1)	c	c	85.5	(2.6)	c	c
Kyrgyzstan	c	c	c	c	c	c	c	c	c	c	c	c
Latvia	78.3	(1.9)	83.5	(4.0)	95.0	(1.0)	95.4	(1.6)	89.3	(1.2)	80.1	(3.3)
Liechtenstein	73.0	(5.9)	85.5	(6.8)	89.7	(3.8)	91.9	(4.8)	82.9	(4.8)	86.1	(5.7)
Lithuania	88.5	(1.3)	90.6	(2.2)	97.6	(0.6)	96.7	(1.6)	92.5	(1.1)	90.9	(2.1)
Macao-China	86.8	(2.0)	93.7	(3.5)	87.7	(2.2)	85.2	(5.8)	91.6	(1.3)	93.0	(2.5)
Montenegro	80.2	(4.9)	c	c	79.4	(4.6)	c	c	85.5	(4.6)	c	c
Qatar	c	c	c	c	c	c	c	c	c	c	c	c
Romania	91.2	(2.4)	c	c	91.7	(3.2)	c	c	89.1	(3.1)	c	c
Russian Federation	76.3	(2.0)	81.5	(3.5)	92.3	(1.6)	93.8	(1.8)	92.3	(1.2)	90.2	(2.3)
Serbia	79.8	(2.4)	c	c	82.9	(2.5)	c	c	77.7	(2.8)	c	c
Slovenia	75.2	(1.6)	81.9	(2.0)	90.1	(1.1)	93.5	(1.2)	86.1	(1.5)	83.7	(1.7)
Chinese Taipei	82.8	(0.9)	89.4	(0.9)	88.1	(0.8)	91.6	(0.9)	86.5	(0.8)	85.2	(1.3)
Thailand	99.0	(0.8)	c	c	99.4	(0.7)	c	c	83.3	(3.5)	c	c
Tunisia	c	c	c	c	c	c	c	c	c	c	c	c
Uruguay	89.2	(2.8)	c	c	96.2	(1.2)	c	c	79.7	(3.0)	c	c

Source: OECD, *PISA 2006 Database.*
Please refer to the Reader's Guide for information on the abbreviations used in this table.
StatLink http://dx.doi.org/10.1787/664103188707

Table A5.6a.

Indices of school preparation of science-related careers and student information on science-related careers for strong performers and top performers

		Index of school preparation of science-related careers						Index of student information on science-related careers					
		Strong performers		Top performers		Difference in the mean index between strong performers and top performers		Strong performers		Top performers		Difference in the mean index between strong performers and top performers	
		Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD countries	Australia	0.41	(0.03)	0.74	(0.03)	**-0.33**	(0.04)	0.29	(0.02)	0.48	(0.03)	**-0.18**	(0.04)
	Austria	-0.08	(0.06)	0.07	(0.08)	**-0.15**	(0.07)	-0.05	(0.03)	-0.05	(0.05)	0.00	(0.06)
	Belgium	0.03	(0.03)	0.26	(0.04)	**-0.23**	(0.05)	-0.25	(0.02)	-0.21	(0.03)	-0.04	(0.04)
	Canada	0.45	(0.03)	0.74	(0.03)	**-0.29**	(0.04)	0.32	(0.02)	0.44	(0.04)	**-0.13**	(0.05)
	Czech Republic	-0.17	(0.04)	0.09	(0.05)	**-0.26**	(0.06)	-0.11	(0.05)	-0.03	(0.05)	-0.07	(0.08)
	Denmark	0.15	(0.05)	0.36	(0.07)	**-0.21**	(0.09)	0.03	(0.04)	0.13	(0.08)	-0.10	(0.09)
	Finland	0.19	(0.03)	0.35	(0.04)	**-0.16**	(0.06)	0.13	(0.03)	0.21	(0.03)	-0.09	(0.06)
	France	0.44	(0.04)	0.71	(0.07)	**-0.27**	(0.07)	0.15	(0.04)	0.23	(0.06)	-0.08	(0.08)
	Germany	0.20	(0.04)	0.31	(0.06)	-0.11	(0.06)	0.06	(0.03)	0.14	(0.05)	-0.08	(0.07)
	Greece	-0.19	(0.04)	-0.24	(0.12)	0.06	(0.14)	0.43	(0.05)	0.45	(0.10)	-0.02	(0.11)
	Hungary	0.03	(0.05)	0.26	(0.09)	**-0.23**	(0.10)	-0.05	(0.03)	0.04	(0.06)	-0.09	(0.07)
	Iceland	0.33	(0.04)	0.52	(0.07)	**-0.18**	(0.09)	0.15	(0.04)	0.32	(0.06)	**-0.17**	(0.07)
	Ireland	0.40	(0.04)	0.57	(0.05)	**-0.17**	(0.07)	0.08	(0.04)	0.22	(0.07)	-0.13	(0.09)
	Italy	-0.05	(0.04)	0.15	(0.07)	**-0.20**	(0.06)	0.05	(0.02)	0.06	(0.05)	-0.01	(0.06)
	Japan	-0.47	(0.04)	-0.21	(0.06)	**-0.27**	(0.08)	-0.37	(0.03)	-0.34	(0.03)	-0.02	(0.04)
	Korea	-0.28	(0.03)	-0.21	(0.09)	-0.07	(0.09)	-0.27	(0.03)	-0.10	(0.06)	**-0.17**	(0.06)
	Luxembourg	-0.10	(0.05)	-0.02	(0.08)	-0.07	(0.09)	-0.05	(0.03)	-0.05	(0.07)	0.00	(0.08)
	Mexico	0.61	(0.08)	c	c	c	c	-0.14	(0.08)	c	c	c	c
	Netherlands	-0.15	(0.02)	0.16	(0.04)	**-0.31**	(0.04)	-0.32	(0.03)	-0.03	(0.04)	**-0.29**	(0.05)
	New Zealand	0.35	(0.03)	0.68	(0.03)	**-0.34**	(0.05)	0.17	(0.04)	0.32	(0.04)	**-0.15**	(0.05)
	Norway	-0.15	(0.04)	0.00	(0.06)	**-0.15**	(0.08)	-0.14	(0.04)	0.02	(0.06)	**-0.16**	(0.08)
	Poland	-0.07	(0.03)	-0.01	(0.06)	-0.06	(0.06)	0.29	(0.04)	0.39	(0.07)	-0.10	(0.09)
	Portugal	0.41	(0.05)	0.63	(0.10)	-0.22	(0.12)	0.50	(0.04)	0.48	(0.09)	0.02	(0.10)
	Slovak Republic	-0.14	(0.05)	0.04	(0.09)	**-0.18**	(0.09)	-0.07	(0.05)	-0.01	(0.06)	-0.06	(0.08)
	Spain	0.25	(0.03)	0.40	(0.06)	**-0.14**	(0.07)	0.20	(0.03)	0.24	(0.05)	-0.04	(0.06)
	Sweden	0.04	(0.05)	0.26	(0.08)	**-0.22**	(0.10)	-0.08	(0.04)	-0.05	(0.06)	-0.02	(0.07)
	Switzerland	0.23	(0.03)	0.59	(0.05)	**-0.36**	(0.05)	0.13	(0.03)	0.18	(0.05)	-0.05	(0.06)
	Turkey	0.02	(0.11)	c	c	c	c	1.03	(0.07)	c	c	c	c
	United Kingdom	0.38	(0.04)	0.75	(0.04)	**-0.37**	(0.05)	-0.02	(0.03)	0.17	(0.04)	**-0.19**	(0.05)
	United States	0.44	(0.04)	0.67	(0.05)	**-0.23**	(0.05)	0.35	(0.04)	0.43	(0.07)	-0.07	(0.09)
	OECD average	0.10	(0.01)	0.31	(0.01)	**-0.20**	(0.01)	0.06	(0.01)	0.15	(0.01)	**-0.09**	(0.01)
Partner countries and economies	Argentina	0.05	(0.11)	c	c	c	c	-0.42	(0.10)	c	c	c	c
	Azerbaijan	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*	*c*
	Brazil	0.40	(0.09)	c	c	c	c	0.21	(0.05)	0.23	(0.10)	-0.02	(0.11)
	Bulgaria	0.40	(0.06)	0.51	(0.08)	-0.11	(0.10)	0.47	(0.08)	c	c	c	c
	Chile	0.39	(0.07)	c	c	c	c	0.38	(0.06)	c	c	c	c
	Colombia	c	c	c	c	c	c	c	c	c	c	c	c
	Croatia	0.19	(0.04)	0.31	(0.07)	-0.12	(0.07)	0.12	(0.03)	0.27	(0.07)	-0.14	(0.08)
	Estonia	0.25	(0.03)	0.35	(0.04)	**-0.10**	(0.05)	-0.13	(0.03)	-0.16	(0.04)	0.03	(0.05)
	Hong Kong-China	-0.08	(0.04)	0.03	(0.05)	-0.11	(0.07)	0.22	(0.03)	0.25	(0.03)	-0.03	(0.05)
	Indonesia	c	c	c	c	c	c	c	c	c	c	c	c
	Israel	0.00	(0.06)	0.05	(0.09)	-0.05	(0.11)	0.29	(0.06)	0.31	(0.08)	-0.03	(0.09)
	Jordan	0.44	(0.07)	c	c	c	c	0.38	(0.09)	c	c	c	c
	Kyrgyzstan	c	c	c	c	c	c	c	c	c	c	c	c
	Latvia	0.25	(0.04)	0.26	(0.08)	-0.01	(0.10)	-0.04	(0.04)	0.00	(0.08)	-0.04	(0.09)
	Liechtenstein	0.31	(0.13)	0.56	(0.21)	-0.26	(0.24)	0.10	(0.12)	-0.07	(0.18)	0.17	(0.24)
	Lithuania	0.53	(0.04)	0.66	(0.06)	**-0.12**	(0.07)	0.30	(0.04)	0.37	(0.07)	-0.06	(0.09)
	Macao-China	-0.23	(0.04)	-0.23	(0.07)	0.00	(0.09)	-0.11	(0.03)	0.00	(0.10)	-0.11	(0.12)
	Montenegro	0.17	(0.09)	c	c	c	c	-0.16	(0.09)	c	c	c	c
	Qatar	c	c	c	c	c	c	c	c	c	c	c	c
	Romania	0.33	(0.08)	c	c	c	c	0.06	(0.08)	c	c	c	c
	Russian Federation	0.28	(0.04)	0.40	(0.08)	-0.13	(0.08)	0.39	(0.05)	0.41	(0.06)	-0.02	(0.09)
	Serbia	0.01	(0.08)	c	c	c	c	0.19	(0.07)	c	c	c	c
	Slovenia	0.12	(0.03)	0.24	(0.04)	-0.12	(0.06)	0.00	(0.03)	0.06	(0.05)	-0.06	(0.07)
	Chinese Taipei	0.22	(0.02)	0.28	(0.03)	-0.06	(0.04)	0.14	(0.02)	0.23	(0.03)	**-0.09**	(0.04)
	Thailand	0.75	(0.06)	c	c	c	c	0.42	(0.06)	c	c	c	c
	Tunisia	c	c	c	c	c	c	c	c	c	c	c	c
	Uruguay	0.28	(0.06)	c	c	c	c	-0.17	(0.07)	c	c	c	c

Note: Values that are statistically significant are indicated in bold.
Source: OECD, *PISA 2006 Database*.
Please refer to the Reader's Guide for information on the abbreviations used in this table.
StatLink http://dx.doi.org/10.1787/664103188707

Table A5.7a.
Enjoyment of learning science

Average percentage of students in OECD countries agreeing or strongly agreeing with the following:	Strong performers (%)	Top performers (%)
I enjoy acquiring new knowledge in science.	77.6	87.5
I am interested in learning about science.	73.4	84.6
I generally have fun when I am learning science topics.	72.4	83.1
I like reading about science.	60.2	74.8
I am happy doing science problems.	52.7	67.6

Source: OECD, *PISA 2006 Database.*
StatLink http://dx.doi.org/10.1787/664103188707

Table A5.7b.
Science-related activities

Average percentage of students in OECD countries who do the following activities regularly or very often:	Strong performers (%)	Top performers (%)
Read science magazines or science articles in newspapers	25.8	38.1
Watch TV programmes about science	23.5	31.9
Visit web sites about science topics	14.6	21.4
Borrow or buy books on science topics	8.3	13.8
Listen to radio programmes about advances in science	5.3	6.8
Attend a science club	3.5	4.9

Source: OECD, *PISA 2006 Database.*
StatLink http://dx.doi.org/10.1787/664103188707

Table A5.7c.
Instrumental motivation to learn science

Average percentage of students in OECD countries agreeing or strongly agreeing with the following:	Strong performers (%)	Top performers (%)
I study science because I know it is useful for me.	73.3	81.4
Studying my science subject(s) is worthwhile for me because what I learn will improve my career prospects.	66.7	76.4
Making an effort in my science subject(s) is worth it because this will help me in the work I want to do later on.	65.6	75.0
What I learn in my science subject(s) is important for me because I need this for what I want to study later on.	58.5	69.7
I will learn many things in my science subject(s) that will help me get a job.	59.0	67.2

Source: OECD, *PISA 2006 Database.*
StatLink http://dx.doi.org/10.1787/664103188707

Table A5.7d.
Importance of doing well in science

Average percentage of students in OECD countries reporting that it is VERY IMPORTANT to do well in the following subjects:	Strong performers (%)	Top performers (%)
Mathematics	59.5	64.5
Science	34.2	46.6
Reading	48.6	42.6

Source: OECD, *PISA 2006 Database.*
StatLink http://dx.doi.org/10.1787/664103188707

Table A5.7e.
Future-oriented motivation to learn science

Average percentage of students in OECD countries agreeing or strongly agreeing with the following:	Strong performers (%)	Top performers (%)
I would like to work in a career involving science.	45.4	60.8
I would like to study science after secondary school.	38.9	56.0
I would like to spend my life doing advanced science.	24.4	38.6
I would like to work on science projects as an adult.	31.4	46.6

Source: OECD, *PISA 2006 Database.*
StatLink http://dx.doi.org/10.1787/664103188707

INDICATOR A6

HOW DOES PARTICIPATION IN EDUCATION AFFECT PARTICIPATION IN THE LABOUR MARKET?

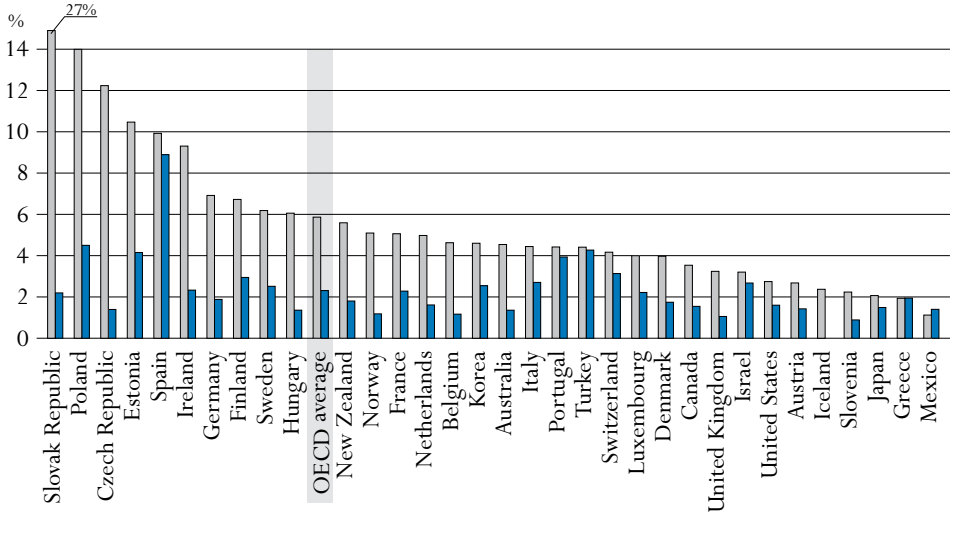
This indicator examines the relationship between educational attainment and labour force status for both males and females. Together, information on employment and unemployment provides a complete picture of labour market participation. Similarly, trend data show changes in labour force status over time, as well as the variation in employment and unemployment risks among groups with different levels of educational attainment.

Key results

Chart A6.1. Difference between highest and lowest unemployment rate for below upper secondary and tertiary educated 25-64 year-olds (1997-2007)

The chart shows the differences in unemployment rates over economic cycles for tertiary and below upper secondary educated individuals over the past decade.

Education is generally good insurance against unemployment, particularly in the context of economic downturns. In all countries except Greece and Mexico, unemployment rates for those with below upper secondary education vary more than for those with tertiary education, and substantially so in many countries. Higher education improves job prospects in general, and also ensures stronger attachment to the labour market in times of economic hardship. For some countries, most notably the Czech Republic, Poland, the Slovak Republic and the partner country Estonia, structural changes of the economies also contribute to magnifying the differences in unemployment risk between lower and higher educated individuals.



Source: OECD. Table A6.4a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664108032182

Other highlights of this indicator

- Employment rates rise for both males and females with higher levels of educational attainment. With few exceptions, the employment rate for tertiary graduates is markedly higher than for upper secondary graduates. For males and females, the gap between upper secondary graduates and those without an upper secondary qualification is particularly wide.

- Those with low educational attainment are both less likely to be labour force participants and more likely to be unemployed. Differences in employment rates between males and females are also wider among less educated groups. The chance of being employed is close to 23 percentage points higher for males than for females among those without upper secondary qualifications but falls to less than 10 points for the most highly qualified.

- On average across OECD countries, more than 40% of individuals with below upper secondary education are not employed. In Belgium, the Czech Republic, Hungary, the Slovak Republic, Turkey and the partner country Israel more than half of the population with below upper secondary education is not employed.

- From 1997-2007 unemployment rates have, on average across OECD countries, improved by 1.8 percentage points for those with upper secondary and post-secondary non-tertiary education, 1.1 percentage points for those with below upper secondary education, and 0.8 percentage point for those with tertiary education. Although differences in unemployment rates between educational groups have narrowed somewhat, it is likely that these differences will widen once again as the current economic downturn effects labour markets.

Policy context

OECD countries' economies and labour markets depend upon a stable supply of well-educated workers to further their economic development. Indicators related to labour market outcomes by educational attainment show how well the supply of skills is matched to demand. However, most educational programmes have a long investment horizon, while shifts in labour demand can occur rapidly. These and other factors need to be considered when interpreting the outcomes of the current labour market.

In times of economic downturn, governments play an important role in cushioning hardship and preparing the workforce for jobs that will become available when economic activity picks up. A key objective for any government is to ensure that cyclical unemployment does not turn into structural unemployment, or worse, that a large part of the population is forced outside the labour market. Once large portions of the population are outside the workforce it has proven difficult to reverse this negative trend.

Higher levels of educational attainment typically lead to higher employment rates. This is principally because those with higher levels of education have made a larger investment in their own human capital and they need to recoup their investment. However, between-country variations in employment rates often also reflect cultural differences and, most notably, differences in the labour participation rates among female workers. Similarly, unemployment rates are generally lower for higher-educated individuals, but this is typically because higher educational attainment makes an individual more attractive in the labour market. Unemployment rates therefore include information both on the individual's desire to work and on the individual's attractiveness to potential employers.

In a sense, employment rates are more closely tied to supply while unemployment rates are more closely tied to demand. Time series on both measures thus carry important information for policy makers about the supply, and potential supply, of skills available to the labour market and about employers' demand for these skills.

There is a link, however, between these two measures as the supply of labour also depends on the prospects of actually finding a job. High unemployment rates typically discourage new entrants to the labour market and this is particularly true if unemployment rates have been high over long periods of time. Active education and training policies are thus important to reducing unemployment by making the individual more attractive to employers and helping to ensure that they are not forced out of the labour market.

Evidence and explanations

Employment

The OECD labour market forecast suggests that unemployment rates will exceed 10% in many OECD countries by the end of 2010 (OECD, 2009b). The figures on unemployment and employment for 2007 published in this year's *Education at a Glance* will likely be the most positive observed for some time to come. The benefits of education in terms of employment prospects are likely to strengthen, as labour market outcomes for higher and lower educated groups are posed to widen in the coming years.

Employment rates for males as well as for females across OECD countries increase from an average of 73.7% for males and 50.8% for females with lower secondary qualifications, to an average of 89.7% for males and 79.9% for females with tertiary type-A qualifications (Table A6.1a). Employment rates for females with a lower secondary education are particularly low, and in Hungary, Poland, the Slovak Republic, Turkey and the partner country Chile employment rates are below 40%. Employment rates for females with tertiary-type A attainment equal or exceed 75% everywhere except Japan, Korea, Mexico and Turkey, but remain below those of males in all countries.

Apart from education, variations in the female employment rate are thus a contributing factor in differences in overall employment rates among countries. The countries with the highest overall rate of employment for 25-64 year-olds – Denmark, Iceland, the Netherlands, New Zealand, Norway, Sweden, Switzerland and the United Kingdom – also have among the highest female employment rates. The overall employment rate for males aged 25 to 64 ranges from 78% or less in Belgium, France, Hungary, Poland, and Turkey and the partner countries Chile and Israel to over 88% in Iceland, Japan, Mexico, New Zealand and Switzerland (Table A6.1a). In contrast, employment rates among females range from 55% or less in Greece, Italy, Mexico and Turkey to above 78% in Iceland, Norway and Sweden, a potential indication of different cultural and social patterns.

As is apparent in Chart A6.2, there is a marked difference in employment rates between different educational groups and between males and females. With few exceptions, education clearly improves the prospects of being employed. This is particularly true for females where an upper secondary education improves the prospects of employment by 19 percentage points and a tertiary education by almost 32 percentage points over those with no upper secondary education.

In Hungary, Italy, the Slovak Republic and the partner country Israel employment rates for 25-64 year-old females with an upper secondary education are at least 30 percentage points higher than for those with below upper secondary education. Females with a tertiary education appear to be particularly advantaged in Turkey where their employment rates are 35 percentage points higher than for females with an upper secondary education (Table A6.2c).

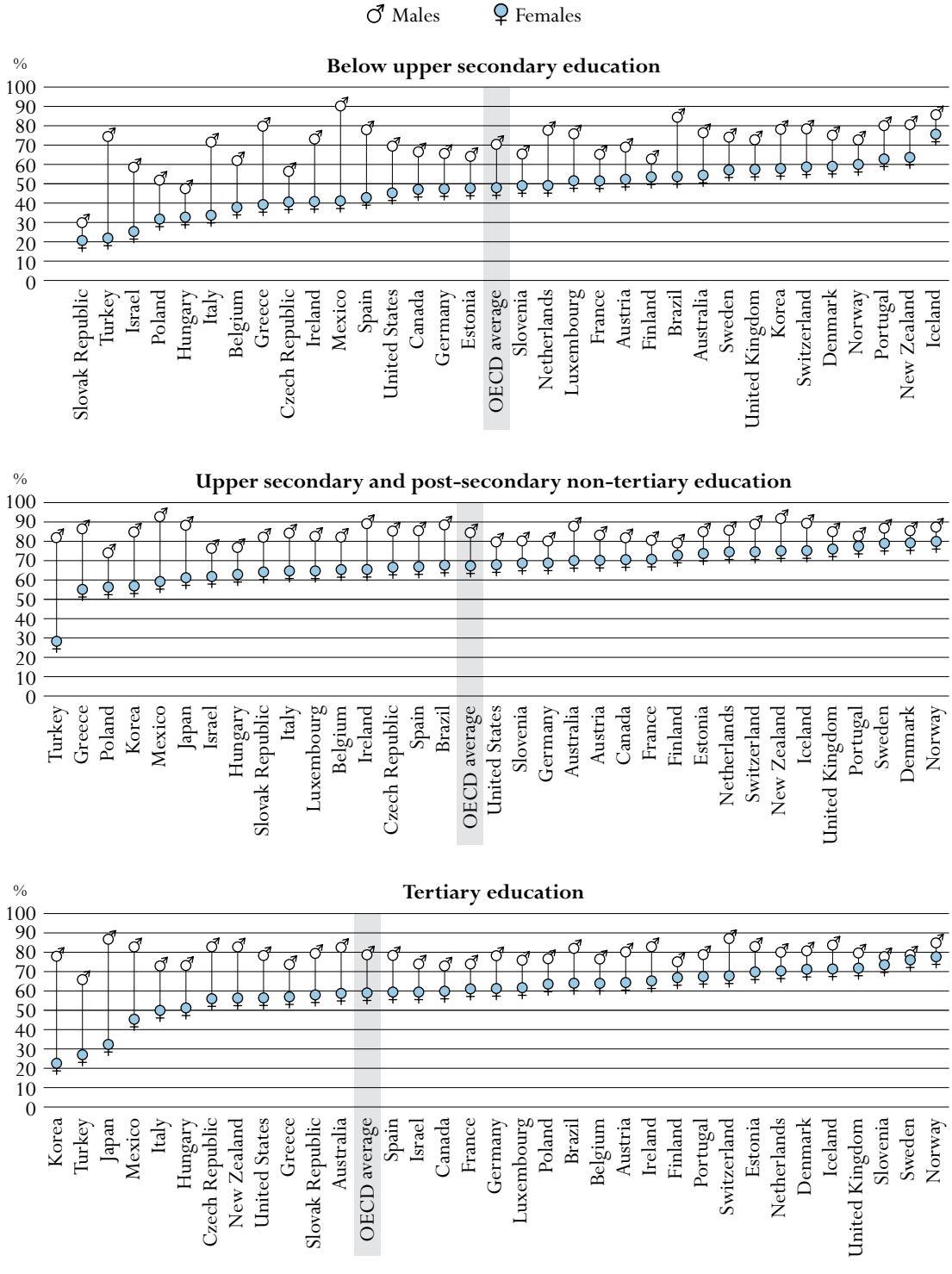
Similarly, in the group of males aged 25 to 64, there is a particularly wide gap in employment rates between those who are upper secondary graduates and those who are not. The extreme cases are the Czech Republic, Hungary and the Slovak Republic, where employment rates for males who have completed upper secondary education are at least 29 percentage points higher than for males who have not. The gap in employment rates between males with and without an upper secondary education is 4 percentage points or less in Iceland, Mexico, Portugal and the partner country Brazil (Chart A6.2 and Table A6.2b).

Employment rates for male tertiary graduates are also higher – around 5 percentage points on average for OECD countries – than for male upper secondary graduates. In 2007, the difference between these two groups ranges from a few percentage points to 9 percentage points or more in Germany, Hungary, Poland, the United States and the partner country Israel (Table A6.2b).

A6

Chart A6.2. Employment rates, by gender and educational attainment (2007)

Percentage of the 25-64 year-old population that is employed



Countries are ranked in ascending order of the employment rate of females.

Source: OECD. Table A6.2b and Table A6.2c, available on line. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664108032182

On average among OECD countries, the difference between the employment rates of males and females decreases significantly at successively higher levels of educational attainment from 22.5 percentage points at the below upper secondary level to less than 10 percentage points at the tertiary level (Table A6.2b and Table A6.2c, available on line). The gap in the employment rates of tertiary educated males and females is 5 percentage points or less in Denmark, Finland, the Netherlands, Norway, Sweden, the United Kingdom and the partner country Slovenia.

While there have been some large changes over time in employment rates of educational groups within countries, the differences between educational groups have narrowed marginally in recent years (Table A6.2a). As employment prospects for lower educated individuals are more sensitive to changes in economic conditions and business cycles, these differences are likely to widen once again.

Unemployment rates fall with higher educational attainment

The employment prospects of individuals with different levels of educational attainment depend largely on the requirements of labour markets and on the supply of workers with different skills. Unemployment rates therefore signal the match between what the education system produces and the skills demanded in the labour market. Those with lower educational qualifications are at particular risk of economic marginalisation since they are both less likely to be labour force participants and more likely to be without a job even if they actively seek one.

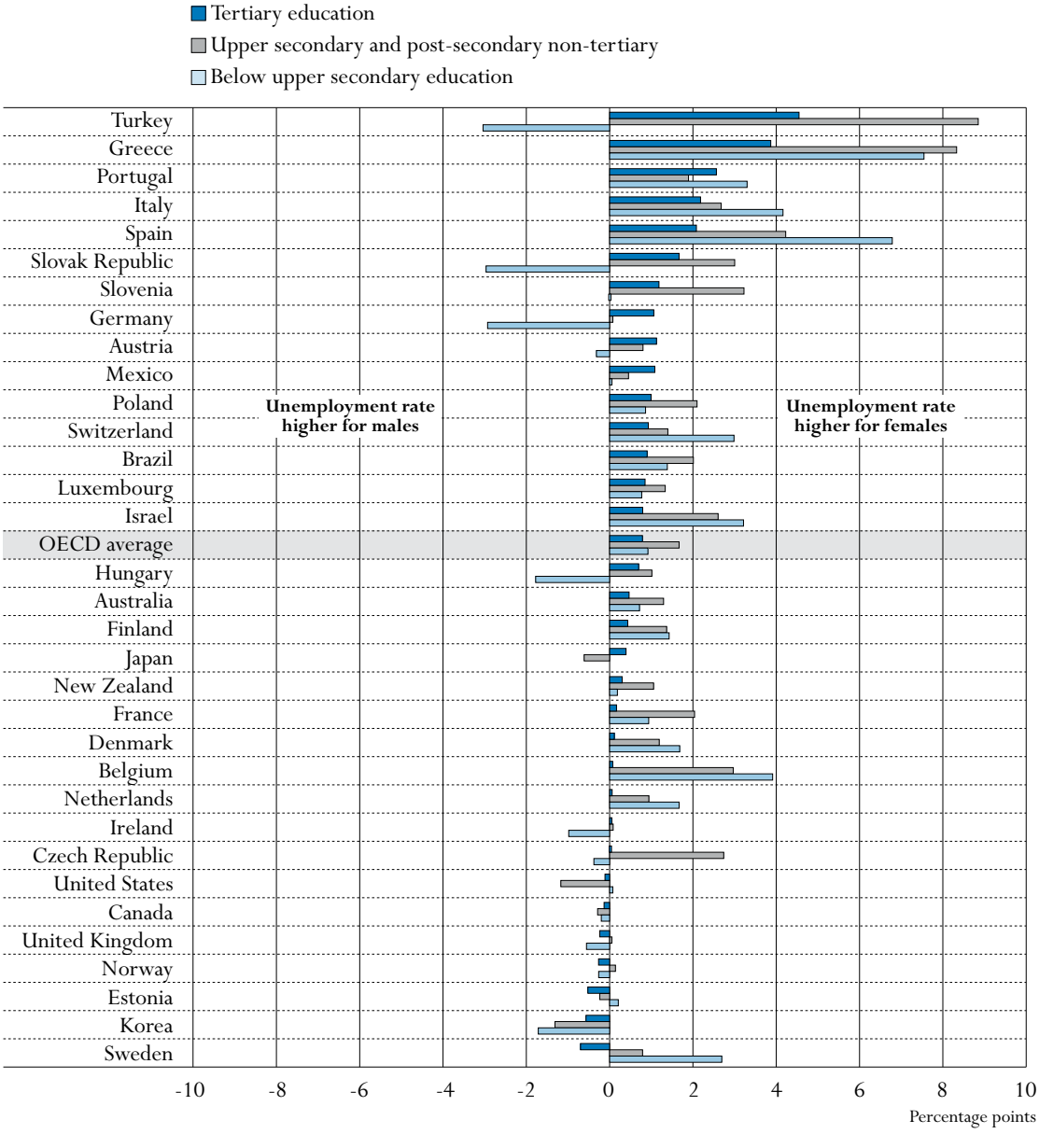
Table A6.3a shows unemployment rates for different educational groups, by gender. On average across OECD countries, unemployment rates decrease as educational attainment increases for both males and females. Unemployment rates for those with a tertiary type-A qualification are less than 4% in most OECD countries (on average 3.0% and 3.7% for males and females respectively). Unemployment rates for those with lower secondary education jump to 8.8% for males and 10.2% for females. Females and males with a lower secondary education are particularly vulnerable in the Czech Republic, Germany, Poland and the Slovak Republic where their unemployment rates are 15% or more. This is also the case for females in Greece and for males in Hungary.

Among OECD countries, an upper secondary education is typically considered the minimum for a competitive position in the labour market. On average, the rate of unemployment among those who have completed an upper secondary education is 4 percentage points lower than among those who have not completed this level (Table A6.4a). The unemployment risk associated with the lack of an upper secondary level of education depends upon a country's industry composition and level of economic development. The risk is high in the Czech Republic, Hungary (10% or more) and particularly high in the Slovak Republic (32.8%). Only in Greece, Korea, Mexico, Turkey and the partner country Brazil is the lack of upper secondary education not associated with a higher risk of unemployment; in these countries the unemployment rate is lower for those with below upper secondary education than for those with upper secondary and post-secondary non-tertiary education.

On average among OECD countries, male labour force participants aged 25 to 64 with below the upper secondary level are more than twice as likely to be unemployed as males in this age group with upper secondary education (Table A6.4b, available on line). The negative association between unemployment and educational attainment is similar but somewhat smaller for females

(Table A6.4c, available on line). Differences in unemployment rates for males and females generally decrease with higher levels of educational attainment (Chart A6.3). Among females with tertiary education, unemployment rates are 2 percentage points higher than that for males only in Greece, Italy, Spain, Portugal and Turkey. In 11 OECD countries, unemployment rates for males with less than upper secondary education are higher than for females with the same education level.

Chart A6.3. Difference between unemployment rates of females and males, by level of educational attainment (2007)



Countries are ranked in descending order of the difference in unemployment rates of females and males who have completed tertiary education.

Source: OECD. Table A6.4b and Table A6.4c, available on line. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Between 1997 and 2007, on average among OECD countries, unemployment rates for those with upper secondary and post-secondary non-tertiary education decreased by 1.8 percentage points (Table A6.4a). Unemployment rates for those with upper secondary and post-secondary non-tertiary education have improved by 5 percentage points or more in Finland, Spain and Sweden. Unemployment rates for those with less than upper secondary education have also decreased by over 6 percentage points in Finland, Ireland and Spain. However, unemployment rates for those with less than upper secondary education have risen dramatically in the Czech Republic and the Slovak Republic. Overall unemployment rates for this group have improved by 1.1 percentage points over this period. For those with tertiary education, the decrease in the unemployment rate is 0.8 percentage point.

Although the differences in unemployment rates between educational groups have narrowed somewhat over the past decade and especially between those with upper secondary and tertiary attainment, it also reflects the sensitivity of different educational groups to shifts in overall demand for labour. As shown in Chart A6.1, unemployment rates for those with below upper secondary education are more cyclical in nature than for those with tertiary education. On average across OECD countries, unemployment rates for individuals with tertiary attainment have stayed at or below 4.1% over the past decade. The most vulnerable group of individuals are thus the lower educated and it is likely that unemployment rates for those with below upper secondary education will once again increase sharply as the economic downturn starts to affect the labour force.

Higher unemployment rates in general, and widening unemployment rates between educational groups in particular, provide greater incentives for individuals to invest in education. First, because foregone earnings while in study will be lower as a consequence of higher unemployment. Second, because better employment prospects among more educated groups will add to the benefit-side of the investment equation. As incentives for individuals to invest in education improve, it is also important for education systems to respond by increasing access to and resources for educational institutions.

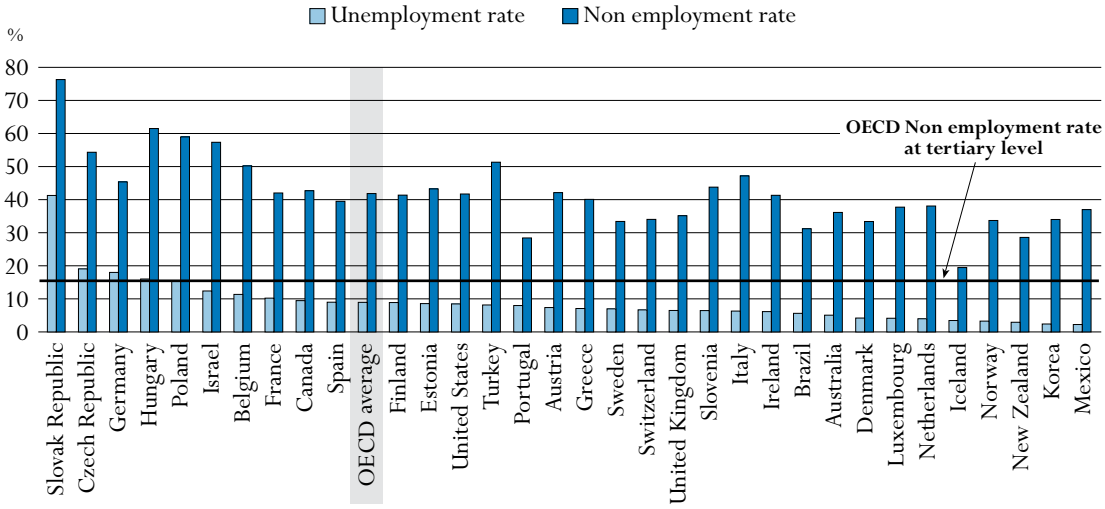
Links between unemployment and employment rates

Since the risk of being unemployed in difficult economic times is typically larger for lower educated individuals, it is also among this group that cyclical unemployment can become a structural problem, where large parts of the working age population are not in the labour market and not actively seeking any employment. Once an individual is outside the labour force for an extended period it is, in many instances, difficult to reverse this situation because of skill obsolescence, deteriorating incentives to seek employment, and other barriers to labour market re-entry. Chart A6.4 shows the unemployment and non-employment rates for 25-64 year-olds with below upper secondary education.

The non-employment rate (the opposite of employment rate, and includes those who are unemployed as well as those who have dropped out of the labour market) for individuals with below upper secondary education is substantial, at more than 40% on average across OECD countries. In Belgium, the Czech Republic, Hungary, the Slovak Republic and Turkey and the partner country Israel more than half of the population with below upper secondary education is in the category of non-employed. A portion of this group is actively seeking employment, as reflected in the unemployment rate in the chart. While unemployment rates are substantially higher among those

with below upper secondary education than among more educated groups, unemployment rates are typically only a fraction of the non-employed population. Note however, that employment rates are based on the total population whereas calculations of unemployment rates are based on the total labour force (employed and unemployed). The smaller base for calculating unemployment rates inflates the number of individuals actively seeking employment relative to those who are not.

Chart A6.4. Unemployment and non-employment[1] rates among 25-64 year-olds with below upper secondary education (2007)

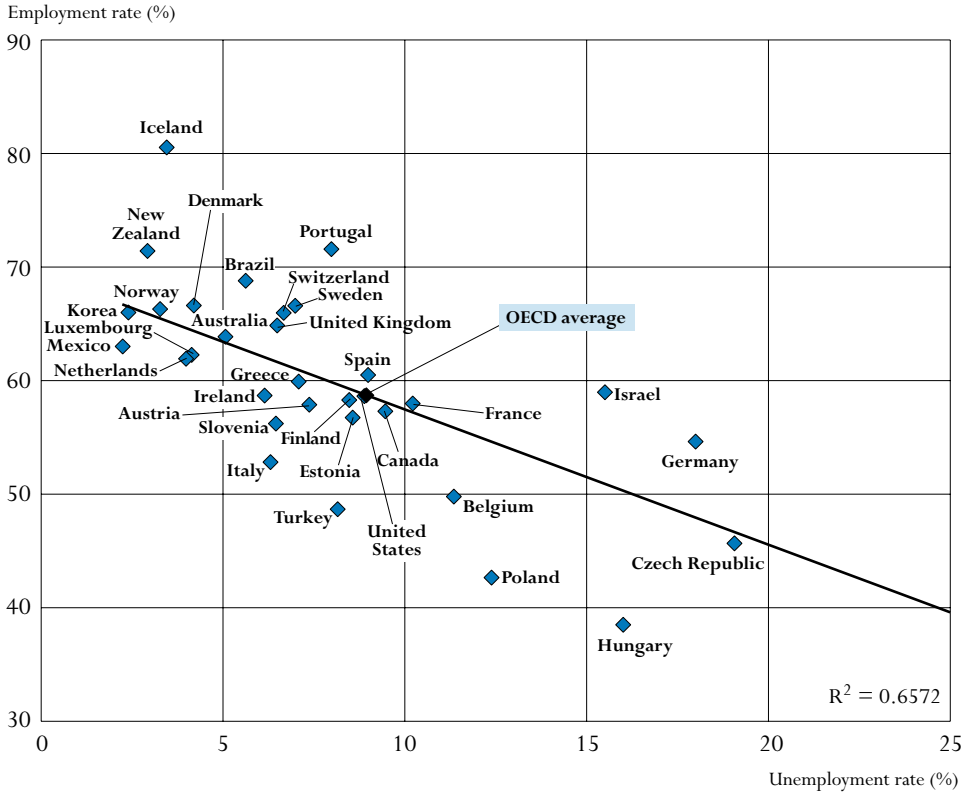


1. The non-employment refers to 1 minus the employment rate.
Countries are ranked in descending order of the unemployment rates of those who have completed below upper secondary education.
Source: OECD. Table A6.2a and Table A6.4a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664108032182

Nevertheless, the proportion of the labour force with below upper secondary education actively seeking employment is in some countries sizable. In the Czech Republic, Germany, Hungary and the Slovak Republic unemployment rates exceed average non-employment rates for tertiary educated individuals in OECD countries. In a few countries unemployment rates are marginal, while non-employment rates are still high. In Korea, Mexico, the Netherlands and Norway unemployment rates among those with below upper secondary education are at 4% or below, whereas non-employment rates still exceeds 30%. Some of these differences can, as noted earlier, be linked to female labour force participation rates, and may be explained to some extent, by differences in cultural and social patterns among countries.

Another explanation is, of course, that the lack of jobs, as measured in unemployment rates, discourages females as well as males from trying to enter the labour market. Differences in employment rates between those with below upper secondary education and tertiary education do, to some extent, support the notion of non-employment as a forced choice. Chart A6.5 examines the question of whether those with lower levels of education are forced out of the labour market by relating employment rates to unemployment rates for 25-64 year-olds with below upper secondary education and utilizing the fact that the unemployed are only a fraction of the non-employed.

Chart A6.5. Relationship between employment and unemployment rates for 25-64 year-olds with below upper secondary education (2007)



Note: The Slovak Republic has been excluded from the chart to preserve legibility.
Source: OECD. Table A6.2a and Table A6.4a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664108032182

Employment rates for those with below upper secondary education are strongly dependent on unemployment rates. As unemployment increases, employment decreases. It seems that a large part of this relationship is due to a lack of suitable jobs, which increases the number of individuals outside the labour market (non-employed). The relationship between employment and unemployment is substantially stronger for those who have not completed an upper secondary education (R^2= 66%) than for those who have completed upper secondary and tertiary education. Not being employed thus appears to be more of a forced choice among those with below upper secondary education than among more educated groups.

Some caution is needed in interpreting the chart as part of the relationship is driven by the difference in the base population used to calculate the two rates. (*i.e.* total population and labour force). However, the pattern is qualitatively similar when using unemployed to total population instead of unemployed to labour force. For tertiary educated individuals some ceiling effects come into play, but overall these cross country correlations indicate that a substantial portion of employment and non-employment results from the lack of suitable jobs.

Definition and methodologies

Under the auspices of the International Labour Organisation (ILO) and their conferences of labour statisticians, concepts and definitions for measuring labour force participation were established and are now used as a common reference (ILO, 1982).

The employment rate refers to the number of persons in employment as a percentage of the population of working age.

The unemployment rate refers to unemployed persons as a percentage of the civil labour force.

The unemployed are defined as individuals who are, during the survey reference week, without work, actively seeking employment and currently available to start work. The employed are defined as those who, during the survey reference week: *i)* work for pay (employees) or profit (self-employed and unpaid family workers) for at least one hour; or *ii)* have a job but are temporarily not at work (through injury, illness, holiday, strike or lock-out, educational or training leave, maternity or parental leave, etc.).

Further references

OECD (2009b), *OECD Economic Outlook, Interim Report, March 2009*, OECD, Paris.

The following additional material relevant to this indicator is available on line at:
StatLink http://dx.doi.org/10.1787/664108032182

- ***Table A6.1b. Employment rates and educational attainment (2007)***
- ***Table A6.2b. Trends in employment rates of 25-64 year-old males, by educational attainment (1997-2007)***
- ***Table A6.2c. Trends in employment rates of 25-64 year-old females, by educational attainment (1997-2007)***
- ***Table A6.2d. Trends in employment rates for 55-64 year-olds, by educational attainment (1997-2007)***
- ***Table A6.3b. Unemployment rates and educational attainment (2007)***
- ***Table A6.4b. Trends in unemployment rates of males, by educational attainment (1997-2007)***
- ***Table A6.4c. Trends in unemployment rates of females, by educational attainment (1997-2007)***

Table A6.1a.

Employment rates and educational attainment, by gender (2007)

Number of 25-64 year-olds in employment as a percentage of the population aged 25 to 64, by level of education attained and gender

			Pre-primary and primary education	Lower secondary education	ISCED 3C Short	Upper secondary education: ISCED 3C Long / 3B	Upper secondary education: ISCED 3A	Post-secondary non-tertiary education	Tertiary education: Type B	Tertiary education: Type A and advanced research programmes	All levels of education
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	**Australia**	Males	64.7	81.1	x(5)	x(5)	87.9	86.8	90.5	91.5	85.7
		Females	36.2	59.9	x(5)	x(5)	68.7	78.9	76.0	80.8	67.7
	Austria	Males	x(2)	68.1	83.1	82.1	81.0	89.8	86.8	92.8	82.5
		Females	x(2)	51.4	61.2	67.9	69.1	79.8	83.8	81.2	67.2
	Belgium	Males	49.5	70.1	a	81.2	82.2	84.1	87.4	88.9	77.5
		Females	28.4	45.9	a	63.3	65.7	73.3	81.0	83.5	62.1
	Canada	Males	54.7	71.1	a	x(5)	81.4	82.5	86.5	86.4	81.6
		Females	33.5	53.6	a	x(5)	69.5	73.2	79.7	80.1	72.5
	Czech Republic	Males	c	58.1	a	83.2	88.5	x(5)	x(8)	91.4	84.4
		Females	c	40.9	a	61.4	70.7	x(5)	x(8)	77.9	64.6
	Denmark	Males	52.5	75.4	79.5	86.1	80.8	c	89.3	90.6	84.5
		Females	43.4	58.0	72.0	80.0	74.3	c	84.1	86.0	76.1
	Finland	Males	51.8	73.3	a	a	79.0	c	83.6	89.8	78.2
		Females	45.4	61.3	a	a	72.6	c	82.3	84.5	73.9
	France	Males	51.5	74.4	a	80.1	82.1	c	88.6	86.0	77.6
		Females	39.4	60.7	a	69.1	73.3	c	82.9	78.7	67.1
	Germany	Males	56.0	68.0	a	80.4	63.3	84.8	88.1	89.6	80.7
		Females	33.6	50.2	a	68.3	54.8	77.6	80.1	80.9	67.3
	Greece	Males	75.4	86.3	85.3	89.7	85.2	88.2	84.6	88.0	83.8
		Females	35.7	46.7	62.6	60.1	50.6	68.1	75.7	79.7	53.7
	Hungary	Males	18.8	49.6	a	74.9	79.6	81.2	86.5	86.5	73.3
		Females	5.9	34.6	a	58.6	65.7	64.5	81.7	75.4	58.1
	Iceland	Males	68.9	87.7	87.0	89.3	80.8	93.5	91.8	91.8	88.8
		Females	61.0	75.8	78.3	79.7	72.6	71.7	80.6	86.5	78.6
	Ireland	Males	62.1	82.7	c	a	88.4	90.4	91.1	91.6	84.1
		Females	31.6	48.7	c	a	63.9	69.4	78.3	85.0	64.2
	Italy	Males	51.9	78.3	81.3	84.6	84.2	86.9	81.5	86.7	78.5
		Females	16.9	42.8	53.7	60.3	65.2	71.1	70.0	75.1	51.5
	Japan	Males	x(5)	x(5)	x(5)	x(5)	88.2	a	93.9	93.2	90.4
		Females	x(5)	x(5)	x(5)	x(5)	61.2	a	64.7	68.8	63.1
	Korea	Males	74.0	81.6	a	x(5)	84.8	a	89.7	88.7	85.3
		Females	58.1	57.8	a	x(5)	56.5	a	61.9	60.9	58.3
	Luxembourg	Males	69.4	86.0	82.7	81.0	85.3	77.6	84.8	89.2	81.9
		Females	51.0	50.2	53.2	57.3	68.8	73.0	78.6	82.1	63.8
	Mexico	Males	88.7	93.4	a	92.0	92.6	a	92.1	91.4	90.9
		Females	38.6	47.6	a	59.7	59.1	a	77.3	72.6	48.4
	Netherlands	Males	66.9	81.6	x(4)	82.5	88.3	85.4	86.9	90.2	85.2
		Females	35.3	53.6	x(4)	70.1	77.2	77.4	84.9	85.1	70.0
	New Zealand	Males	x(2)	77.6	88.6	89.9	92.3	92.3	91.1	91.4	88.5
		Females	x(2)	59.7	73.0	74.2	75.5	75.1	77.4	78.6	73.0
	Norway	Males	c	72.7	a	87.3	86.2	91.7	93.7	92.2	85.9
		Females	c	60.5	a	79.6	78.7	88.3	93.6	88.6	78.9
	Poland	Males	x(2)	51.8	a	70.8	77.6	84.7	x(8)	88.3	73.3
		Females	x(2)	31.6	a	50.1	59.4	64.6	x(8)	81.7	58.0
	Portugal	Males	78.4	85.6	x(5)	x(5)	82.2	87.0	x(8)	89.3	81.4
		Females	60.0	73.3	x(5)	x(5)	78.0	64.3	x(8)	83.7	68.2
	Slovak Republic	Males	c	31.7	x(4)	77.6	87.8	a	76.9	90.1	78.4
		Females	c	21.3	x(4)	57.1	68.3	a	74.6	79.3	58.7
	Spain	Males	68.0	84.9	a	87.8	84.5	91.5	89.3	89.0	82.7
		Females	32.4	52.2	a	65.6	67.2	69.6	74.7	81.5	58.8
	Sweden	Males	65.7	78.3	a	x(5)	86.6	87.8	87.0	90.1	85.3
		Females	43.9	65.1	a	x(5)	78.8	80.2	85.5	89.0	79.2
	Switzerland	Males	73.6	81.1	c	89.6	82.7	85.9	94.8	93.0	89.6
		Females	51.8	59.7	63.1	74.5	72.8	80.0	87.8	82.4	73.9
	Turkey	Males	73.4	78.8	a	83.6	80.6	a	x(8)	82.9	77.1
		Females	22.0	20.6	a	29.4	27.4	a	x(8)	63.5	26.4
	United Kingdom	Males	c	60.4	83.0	84.6	86.2	c	88.6	90.2	82.8
		Females	c	43.2	69.0	76.1	75.8	c	84.3	86.5	72.8
	United States	Males	71.9	67.7	x(5)	x(5)	79.7	x(5)	86.0	89.9	81.9
		Females	42.1	47.3	x(5)	x(5)	67.6	x(5)	77.8	78.2	69.6
	OECD average	***Males***	***63.1***	***73.7***	***82.4***	***84.4***	***83.7***	***85.9***	***88.1***	***89.7***	***82.7***
		Females	***38.5***	***50.8***	***63.6***	***65.6***	***67.0***	***73.5***	***79.2***	***79.9***	***64.9***
	EU19 average	***Males***	***58.4***	***70.8***	***80.8***	***82.6***	***82.8***	***84.7***	***86.3***	***89.4***	***80.8***
		Females	***35.9***	***49.0***	***60.2***	***65.4***	***68.4***	***71.6***	***80.1***	***81.9***	***65.0***
Partner countries	**Brazil**	Males	83.8	86.8	x	x	88.5	x	x(8)	91.0	86.1
		Females	52.2	57.7	x	x	67.3	x	x(8)	81.9	60.4
	Chile[1]	Males	24.4	63.2	x(5)	x(5)	71.8	a	81.1	84.3	74.3
		Females	8.8	26.8	x(5)	x(5)	59.6	a	69.5	80.0	60.8
	Estonia	Males	c	67.2	a	69.8	86.6	88.5	89.2	92.5	83.9
		Females	c	49.4	a	60.2	73.1	80.3	79.3	88.0	75.7
	Israel	Males	52.2	66.0	a	81.9	74.0	a	85.9	87.5	76.8
		Females	17.8	40.1	a	64.4	60.5	a	73.1	83.2	63.4
	Slovenia	Males	35.8	70.1	a	77.4	83.6	a	86.7	90.7	79.5
		Females	30.6	51.1	a	65.7	70.4	a	83.8	89.5	69.3

1. Year of reference 2004.

Source: OECD. See Annex 3 for a description of ISCED-97 levels, ISCED-97 country mappings and national data sources *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664108032182

Table A6.2a.

Trends in employment rates of 25-64 year-olds by educational attainment (1997-2007)

Number of 25-64 year-olds in employment as a percentage of the population aged 25 to 64, by level of educational attainment

OECD countries

		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Australia	Below upper secondary	59.5	59.5	59.1	60.8	59.9	60.0	61.0	60.6	62.9	63.5	63.9
	Upper secondary and post-secondary non-tertiary	76.1	75.9	76.2	76.7	78.0	77.8	78.7	78.8	79.8	80.4	80.5
	Tertiary education	83.4	83.8	82.0	82.9	83.1	83.5	83.2	83.3	84.4	84.4	84.8
Austria	Below upper secondary	52.8	52.6	53.3	53.7	53.5	54.4	55.0	52.2	53.3	55.7	57.9
	Upper secondary and post-secondary non-tertiary	75.6	75.0	75.6	74.8	74.8	75.3	75.6	73.9	74.3	75.8	76.9
	Tertiary education	86.0	85.8	86.2	87.5	86.6	86.0	85.0	82.5	84.5	85.9	86.8
Belgium	Below upper secondary	47.5	47.5	49.1	50.5	49.0	48.8	48.9	48.8	49.0	49.0	49.8
	Upper secondary and post-secondary non-tertiary	73.4	72.0	74.5	75.1	73.9	73.8	72.8	73.1	74.0	73.2	74.2
	Tertiary education	83.9	84.3	85.4	85.3	84.5	83.7	83.6	83.9	84.2	83.6	84.9
Canada	Below upper secondary	52.5	53.5	54.4	55.0	54.4	55.3	56.4	57.1	56.4	56.9	57.3
	Upper secondary and post-secondary non-tertiary	73.9	74.5	75.4	76.1	75.4	75.9	76.3	76.7	76.3	76.0	76.5
	Tertiary education	81.7	82.3	82.4	82.7	81.9	82.0	82.0	82.2	82.2	82.6	82.9
Czech Republic	Below upper secondary	51.1	49.5	46.9	46.9	46.7	45.3	46.0	42.3	41.2	43.9	45.7
	Upper secondary and post-secondary non-tertiary	79.7	78.2	76.4	75.5	75.7	76.2	75.8	74.8	75.5	75.6	76.1
	Tertiary education	89.3	88.7	87.4	86.8	87.8	87.1	86.5	86.4	85.8	85.1	85.2
Denmark	Below upper secondary	m	60.9	61.7	62.2	61.5	61.2	62.6	61.7	61.5	62.8	66.6
	Upper secondary and post-secondary non-tertiary	m	79.1	80.7	81.0	81.0	80.3	79.8	79.9	79.9	81.3	82.5
	Tertiary education	m	87.5	87.9	88.6	87.2	86.0	85.2	85.5	86.4	87.4	87.8
Finland	Below upper secondary	54.7	56.2	58.6	57.3	58.2	57.7	57.9	57.1	57.9	58.4	58.6
	Upper secondary and post-secondary non-tertiary	72.2	73.1	74.3	74.9	75.5	74.4	74.4	74.4	75.2	75.6	76.2
	Tertiary education	82.6	83.2	84.7	84.4	85.1	85.1	85.0	84.2	84.1	85.0	85.2
France	Below upper secondary	56.3	56.3	56.4	57.0	57.7	57.8	58.9	59.1	58.6	58.1	58.0
	Upper secondary and post-secondary non-tertiary	75.0	75.0	75.1	75.8	76.5	76.7	76.3	75.7	75.7	75.6	75.8
	Tertiary education	81.3	81.6	81.8	83.1	83.7	83.3	83.3	82.9	83.0	83.0	83.5
Germany	Below upper secondary	45.7	46.1	48.7	50.6	51.8	50.9	50.2	48.6	51.6	53.8	54.6
	Upper secondary and post-secondary non-tertiary	68.2	67.9	69.9	70.4	70.5	70.3	69.7	69.5	70.6	72.5	74.4
	Tertiary education	82.3	82.2	83.0	83.4	83.4	83.6	83.0	82.7	82.9	84.3	85.5
Greece	Below upper secondary	57.4	57.3	57.1	57.9	57.6	58.5	59.7	58.2	59.2	59.5	59.9
	Upper secondary and post-secondary non-tertiary	63.3	64.6	64.7	64.7	65.2	65.7	66.8	68.0	69.1	69.7	69.6
	Tertiary education	80.2	80.8	81.1	81.4	80.4	81.3	81.9	82.0	82.0	83.3	82.9
Hungary	Below upper secondary	36.2	36.2	35.8	35.8	36.6	36.7	37.4	36.9	38.1	38.2	38.5
	Upper secondary and post-secondary non-tertiary	70.7	70.9	72.1	72.1	71.9	71.7	71.4	70.9	70.4	70.4	70.2
	Tertiary education	81.4	81.0	82.1	82.4	82.6	82.0	82.7	82.9	83.0	81.8	80.4
Iceland	Below upper secondary	83.8	85.6	87.2	87.3	87.2	86.4	83.7	81.6	83.0	83.6	80.5
	Upper secondary and post-secondary non-tertiary	88.0	88.6	90.5	89.0	89.7	89.4	88.7	87.8	88.2	88.6	83.2
	Tertiary education	94.6	94.7	95.1	95.0	94.7	95.4	92.7	92.0	92.0	92.0	88.6
Ireland	Below upper secondary	50.3	53.4	54.4	60.7	58.4	56.7	56.6	57.5	58.4	58.7	58.7
	Upper secondary and post-secondary non-tertiary	68.7	71.7	74.8	77.0	77.3	76.6	75.6	75.9	76.7	77.3	77.1
	Tertiary education	81.9	85.2	87.2	87.2	87.0	86.3	86.1	86.2	86.8	86.5	86.7
Italy	Below upper secondary	m	47.8	48.0	48.6	49.4	50.5	50.7	51.7	51.7	52.5	52.8
	Upper secondary and post-secondary non-tertiary	m	70.1	70.3	71.2	72.1	72.3	72.4	73.5	73.5	74.4	74.5
	Tertiary education	m	80.8	80.7	81.4	81.6	82.2	82.0	81.2	80.4	80.6	80.2
Japan	Below upper secondary	69.6	68.8	68.2	67.1	67.5	m	m	m	m	m	m
	Upper secondary and post-secondary non-tertiary	75.3	75.8	74.2	73.8	74.4	71.9	71.8	72.0	72.3	73.1	74.3
	Tertiary education	80.7	79.5	79.2	79.0	79.8	79.1	79.2	79.3	79.4	79.8	80.0
Korea	Below upper secondary	71.2	66.1	66.9	68.0	67.8	68.4	66.5	66.4	65.9	66.2	66.0
	Upper secondary and post-secondary non-tertiary	71.7	66.5	66.4	68.7	69.3	70.5	69.6	70.1	70.1	70.3	70.7
	Tertiary education	80.2	76.1	74.6	75.4	75.7	76.1	76.4	76.7	76.8	77.2	77.2
Luxembourg	Below upper secondary	m	m	56.5	58.3	60.0	59.3	60.3	59.1	61.8	60.8	62.3
	Upper secondary and post-secondary non-tertiary	m	m	73.9	74.6	74.8	73.6	73.3	72.6	71.7	73.4	73.9
	Tertiary education	m	m	85.0	84.3	85.5	85.2	82.3	84.1	84.0	85.2	84.5
Mexico	Below upper secondary	61.8	61.3	61.4	60.7	60.5	61.3	60.9	62.2	61.8	62.8	63.0
	Upper secondary and post-secondary non-tertiary	70.5	69.8	69.9	71.2	70.4	70.4	70.3	71.0	71.9	73.6	73.9
	Tertiary education	84.0	83.7	82.4	83.1	81.6	81.4	81.8	82.1	82.0	83.3	83.1
Netherlands	Below upper secondary	m	55.3	60.7	57.6	58.8	60.7	59.4	59.4	59.5	60.6	61.9
	Upper secondary and post-secondary non-tertiary	m	76.8	79.5	79.4	80.0	79.8	78.8	77.9	77.9	79.1	80.3
	Tertiary education	m	85.4	87.2	86.3	86.3	86.5	85.9	85.3	85.6	86.4	87.7

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664108032182

Table A6.2a. *(continued)*

Trends in employment rates of 25-64 year-olds by educational attainment (1997-2007)

Number of 25-64 year-olds in employment as a percentage of the population aged 25 to 64, by level of educational attainment

			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
OECD countries	**New Zealand**	Below upper secondary	63.6	63.0	64.1	65.2	66.4	67.4	67.8	69.3	70.4	70.4	71.4
		Upper secondary and post-secondary non-tertiary	80.5	79.4	80.0	80.2	80.4	81.4	81.6	82.9	84.5	84.5	84.8
		Tertiary education	82.4	81.6	82.0	82.3	83.8	83.0	82.7	83.4	84.3	84.6	83.8
	Norway	Below upper secondary	66.7	67.7	67.1	65.3	63.3	64.2	64.1	62.1	64.3	64.7	66.3
		Upper secondary and post-secondary non-tertiary	83.3	83.9	82.9	82.7	82.7	81.5	79.6	78.8	82.4	83.1	84.0
		Tertiary education	90.2	90.2	90.2	89.9	89.6	89.5	88.8	89.3	88.8	89.2	90.4
	Poland	Below upper secondary	50.3	49.1	46.6	42.8	41.5	39.1	38.2	37.5	37.7	38.6	41.0
		Upper secondary and post-secondary non-tertiary	70.7	71.1	69.7	66.6	64.8	62.5	61.6	61.3	61.7	62.9	65.2
		Tertiary education	86.7	87.2	86.6	84.5	84.1	83.1	82.6	82.3	82.7	83.5	84.5
	Portugal	Below upper secondary	m	71.6	71.9	72.8	73.0	72.8	72.2	71.9	71.5	71.7	71.6
		Upper secondary and post-secondary non-tertiary	m	80.0	81.9	83.2	82.6	82.3	81.6	80.3	79.3	80.2	79.8
		Tertiary education	m	89.3	90.0	90.7	90.8	88.5	87.3	88.0	87.3	86.4	85.9
	Slovak Republic	Below upper secondary	38.9	37.4	33.2	30.9	30.5	28.2	28.5	22.0	21.7	23.5	23.7
		Upper secondary and post-secondary non-tertiary	75.9	75.1	72.5	70.6	70.2	70.5	71.2	70.3	70.8	71.9	73.2
		Tertiary education	89.8	88.6	87.0	85.6	86.7	86.6	87.1	83.6	84.0	84.9	84.1
	Spain	Below upper secondary	48.2	49.5	51.0	53.8	55.1	55.7	56.6	57.6	58.6	59.8	60.5
		Upper secondary and post-secondary non-tertiary	66.6	67.5	69.6	72.1	71.8	71.6	72.4	73.2	74.7	75.9	76.3
		Tertiary education	75.5	76.3	77.6	79.7	80.7	80.8	81.6	81.9	82.4	83.4	84.4
	Sweden	Below upper secondary	67.2	66.4	66.5	68.0	68.8	68.2	67.5	67.0	66.1	66.9	66.6
		Upper secondary and post-secondary non-tertiary	78.6	79.3	79.6	81.7	81.9	81.8	81.3	80.7	81.3	81.9	83.1
		Tertiary education	85.0	85.5	85.6	86.7	86.9	86.5	85.8	85.4	87.3	87.3	88.6
	Switzerland	Below upper secondary	68.0	68.8	68.3	64.5	69.6	68.2	66.3	65.4	65.3	64.5	66.0
		Upper secondary and post-secondary non-tertiary	79.6	80.8	80.9	81.4	81.3	81.1	80.5	79.9	80.0	80.2	81.1
		Tertiary education	89.1	90.3	90.7	90.4	91.3	90.6	89.7	89.7	90.0	90.2	90.0
	Turkey	Below upper secondary	56.9	57.4	55.8	53.1	51.9	50.5	49.1	50.1	49.1	49.0	48.7
		Upper secondary and post-secondary non-tertiary	66.8	66.0	63.9	64.0	62.4	61.8	61.1	61.5	63.2	62.7	62.4
		Tertiary education	81.7	81.3	79.0	78.5	78.3	76.3	74.9	75.2	76.1	75.5	75.6
	United Kingdom	Below upper secondary	64.7	64.5	65.0	65.3	65.5	65.3	66.0	65.4	65.5	65.2	64.9
		Upper secondary and post-secondary non-tertiary	79.2	80.1	80.5	81.1	80.9	81.1	81.5	81.2	81.6	81.3	80.9
		Tertiary education	87.2	87.1	87.7	87.8	88.1	87.6	87.8	87.7	88.0	88.1	87.8
	United States	Below upper secondary	55.2	57.6	57.8	57.8	58.4	57.0	57.8	56.5	57.2	58.0	58.3
		Upper secondary and post-secondary non-tertiary	75.7	75.8	76.2	76.7	76.2	74.0	73.3	72.8	72.8	73.3	73.6
		Tertiary education	85.4	85.3	84.6	85.0	84.4	83.2	82.2	82.0	82.5	82.7	83.3
	OECD average	***Below upper secondary***	***57.2***	***57.5***	***57.7***	***57.8***	***58.0***	***57.5***	***57.5***	***56.7***	***57.2***	***57.8***	***58.4***
		Upper secondary and post-secondary non-tertiary	***74.4***	***74.6***	***75.1***	***75.4***	***75.4***	***75.1***	***74.8***	***74.6***	***75.2***	***75.8***	***76.2***
		Tertiary education	***84.3***	***84.5***	***84.5***	***84.7***	***84.8***	***84.4***	***83.9***	***83.8***	***84.1***	***84.4***	***84.5***
	EU19 average	***Below upper secondary***	***51.5***	***53.2***	***53.8***	***54.2***	***54.4***	***54.1***	***54.4***	***53.4***	***53.8***	***54.6***	***55.4***
		Upper secondary and post-secondary non-tertiary	***72.7***	***73.7***	***74.5***	***74.8***	***74.8***	***74.5***	***74.3***	***74.1***	***74.4***	***75.2***	***75.8***
		Tertiary education	***83.8***	***84.5***	***85.0***	***85.1***	***85.2***	***84.8***	***84.5***	***84.1***	***84.5***	***84.8***	***85.1***
Partner countries	**Brazil**	Below upper secondary	m	m	m	m	m	m	m	m	m	m	68.8
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	m	m	m	m	m	76.9
		Tertiary education	m	m	m	m	m	m	m	m	m	m	85.8
	Estonia	Below upper secondary	m	m	m	m	m	44.1	49.0	50.9	50.0	56.5	56.7
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	71.9	72.9	72.6	73.6	78.1	79.4
		Tertiary education	m	m	m	m	m	81.6	80.3	82.4	84.5	87.7	87.4
	Israel	Below upper secondary	m	m	m	m	m	43.5	42.7	40.4	41.2	41.8	42.7
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	66.6	65.9	66.4	66.6	67.5	69.2
		Tertiary education	m	m	m	m	m	79.1	79.3	79.2	80.3	81.2	83.0
	Slovenia	Below upper secondary	m	m	m	m	m	55.6	54.2	55.9	56.1	55.9	56.2
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	74.0	72.7	74.4	74.6	74.1	75.1
		Tertiary education	m	m	m	m	m	86.1	86.1	86.8	87.0	88.2	87.7

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664108032182

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Table A6.3a.

Unemployment rates and educational attainment, by gender (2007)

Number of 25-64 year-olds in unemployment as a percentage of the labour force aged 25 to 64, by level of education attained and gender

			Pre-primary and primary education	Lower secondary education	ISCED 3C Short	Upper secondary education: ISCED 3C Long/3B	Upper secondary education: ISCED 3A	Post-secondary non-tertiary education	Tertiary education: Type B	Tertiary education: Type A and advanced research programmes	All levels of education
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	**Australia**	Males	5.6	4.4	x(5)	x(5)	2.5	c	2.5	1.8	2.9
		Females	9.3	4.7	a	a	4.2	c	3.2	2.1	3.7
	Austria	Males	x(2)	7.8	c	3.0	4.2	c	c	2.3	3.3
		Females	x(2)	7.6	c	4.0	4.4	c	c	3.6	4.3
	Belgium	Males	13.7	7.9	a	6.3	4.5	c	3.2	c	5.7
		Females	14.9	13.1	a	8.2	7.9	c	2.9	c	7.2
	Canada	Males	10.6	9.2	a	x(5)	5.6	5.6	4.4	3.5	5.3
		Females	12.1	8.4	a	x(5)	5.2	5.4	4.1	3.5	4.8
	Czech Republic	Males	c	19.2	a	3.9	1.9	x(8)	x(8)	1.5	3.7
		Females	c	18.9	a	8.6	3.7	x(8)	x(8)	1.5	6.4
	Denmark	Males	c	3.2	c	1.6	4.7	c	2.8	2.9	2.6
		Females	c	5.1	c	3.1	3.7	c	3.1	3.0	3.5
	Finland	Males	8.8	8.0	a	a	5.5	c	3.6	3.2	5.3
		Females	9.1	10.2	a	a	6.9	c	4.0	3.6	5.8
	France	Males	10.1	9.6	a	4.9	5.6	c	4.5	4.9	6.2
		Females	12.6	9.8	a	7.2	6.7	c	3.9	5.7	7.3
	Germany	Males	25.3	18.0	a	8.5	9.0	5.8	3.1	3.6	8.1
		Females	25.9	15.0	a	9.0	7.8	4.6	4.5	4.5	8.6
	Greece	Males	4.5	4.6	c	c	3.8	5.9	4.1	c	4.3
		Females	10.5	15.3	c	c	11.7	12.6	10.3	c	11.1
	Hungary	Males	38.1	16.0	a	6.3	4.0	5.6	c	2.1	6.3
		Females	56.9	14.1	a	8.6	4.9	9.6	c	2.8	6.9
	Iceland	Males	c	c	c	c	c	c	c	c	c
		Females	c	c	c	c	c	c	c	c	c
	Ireland	Males	7.9	5.5	c	a	3.7	3.1	2.5	c	4.1
		Females	c	4.9	c	a	3.5	3.9	3.1	c	3.4
	Italy	Males	6.4	4.6	8.2	2.3	3.0	8.0	5.1	3.0	3.9
		Females	9.7	8.9	12.0	6.0	5.3	9.9	6.0	5.2	6.7
	Japan	Males	x(5)	x(5)	x(5)	x(5)	4.4	a	3.8	2.5	3.7
		Females	x(5)	x(5)	x(5)	x(5)	3.8	a	3.4	2.8	3.5
	Korea	Males	3.2	3.4	a	x(5)	3.8	a	4.8	2.5	3.4
		Females	1.3	1.9	a	x(5)	2.5	a	3.1	2.3	2.3
	Luxembourg	Males	c	5.9	c	2.4	c	c	c	c	c
		Females	c	c	c	c	3.4	c	c	c	c
	Mexico	Males	2.1	2.4	a	2.3	2.5	a	1.1	3.4	2.5
		Females	2.0	2.9	a	2.4	2.9	a	2.0	4.5	2.8
	Netherlands	Males	5.0	2.7	x(4)	2.6	2.1	c	2.2	1.7	2.3
		Females	5.6	4.8	x(4)	3.7	3.0	c	c	1.8	3.1
	New Zealand	Males	x(2)	3.3	1.8	c	1.8	1.1	1.9	2.1	2.0
		Females	x(2)	3.5	2.2	3.0	1.8	c	2.4	2.3	2.6
	Norway	Males	c	3.4	a	c	c	c	c	c	c
		Females	c	3.2	a	c	c	c	c	c	c
	Poland	Males	x(2)	15.1	a	9.4	5.9	5.3	x(8)	3.3	7.7
		Females	x(2)	16.0	a	12.3	8.7	7.3	x(8)	4.3	8.8
	Portugal	Males	6.5	6.6	x(5)	x(5)	5.7	c	x(8)	5.1	6.3
		Females	9.6	10.5	x(5)	x(5)	7.7	c	x(8)	7.6	9.1
	Slovak Republic	Males	c	41.8	x(4)	9.7	4.3	a	c	c	8.5
		Females	c	38.9	x(4)	15.0	7.2	a	c	c	11.7
	Spain	Males	7.6	5.8	c	4.5	5.3	2.9	3.9	3.8	5.3
		Females	14.1	12.9	c	10.0	8.7	14.3	7.9	5.2	9.5
	Sweden	Males	6.5	5.7	a	x(5)	3.9	4.0	4.3	3.6	4.2
		Females	11.1	7.6	a	x(5)	4.5	5.8	3.3	3.0	4.4
	Switzerland	Males	c	4.9	c	2.3	c	c	c	2.1	2.4
		Females	c	7.7	c	3.6	5.6	c	c	2.9	4.1
	Turkey	Males	9.0	8.1	a	6.4	8.1	x(8)	x(8)	5.4	8.0
		Females	5.2	11.5	a	15.0	16.9	x(8)	x(8)	9.9	8.4
	United Kingdom	Males	c	9.0	5.4	4.0	3.4	c	2.5	2.3	4.2
		Females	c	8.0	5.3	4.0	3.6	c	2.2	2.1	3.9
	United States	Males	c	9.1	x(5)	x(5)	5.1	x(5)	3.2	1.9	4.3
		Females	c	c	x(5)	x(5)	3.9	x(5)	2.9	1.8	3.4
	OECD average	***Males***	***10.1***	***8.8***	***5.1***	***4.7***	***4.4***	***4.7***	***3.3***	***3.0***	***4.7***
		Females	***13.1***	***10.2***	***6.5***	***7.3***	***5.7***	***8.1***	***4.0***	***3.7***	***5.8***
	EU19 average	***Males***	***11.7***	***10.4***	***6.8***	***5.0***	***4.5***	***5.1***	***3.5***	***3.1***	***5.1***
		Females	***16.4***	***12.3***	***8.6***	***7.7***	***6.0***	***8.5***	***4.6***	***3.8***	***6.8***
Partner countries	**Brazil**	Males	3.7	4.9	a	7.4	4.6	c	x(8)	2.6	4.1
		Females	7.1	10.4	a	c	9.5	c	x(8)	3.8	7.9
	Chile[1]	Males	5.8	6.9	x(5)	x(5)	6.8	a	12.6	6.0	6.6
		Females	6.1	8.9	x(5)	x(5)	9.2	a	10.7	7.1	8.4
	Estonia	Males	c	8.7	a	c	4.5	c	c	c	4.5
		Females	c	8.8	a	c	4.9	c	4.1	c	c
	Israel	Males	14.3	8.5	a	5.2	6.4	a	3.7	3.1	5.8
		Females	16.1	13.4	a	9.4	8.4	a	5.6	3.4	6.5
	Slovenia	Males	c	5.5	0.0	3.1	2.8	0.0	2.7	2.5	3.4
		Females	c	5.7	0.0	5.8	6.5	0.0	3.1	4.3	5.5

1. Year of reference 2004.

Source: OECD. See Annex 3 for a description of ISCED-97 levels, ISCED-97 country mappings and national data sources *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A6.4a.

Trends in unemployment rates by educational attainment (1997-2007)

Number of 25-64 year-olds unemployed as a percentage of the labour force aged 25 to 64, by level of educational attainment

OECD countries		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Australia	Below upper secondary	9.6	9.0	8.4	7.5	7.6	7.5	7.0	6.2	6.3	5.6	5.1
	Upper secondary and post-secondary non-tertiary	6.1	5.8	5.1	4.5	4.7	4.3	4.3	3.9	3.4	3.8	3.0
	Tertiary education	3.5	3.3	3.4	3.6	3.1	3.3	3.0	2.8	2.5	2.3	2.2
Austria	Below upper secondary	6.6	6.8	5.9	6.2	6.2	6.7	7.8	7.8	8.6	7.9	7.4
	Upper secondary and post-secondary non-tertiary	3.3	3.7	3.2	2.9	3.0	3.4	3.4	3.8	3.9	3.7	3.3
	Tertiary education	2.5	1.9	1.8	1.5	1.5	1.8	2.0	2.9	2.6	2.5	2.4
Belgium	Below upper secondary	12.5	13.1	12.0	9.8	8.5	10.3	10.7	11.7	12.4	12.3	11.3
	Upper secondary and post-secondary non-tertiary	6.7	7.4	6.6	5.3	5.5	6.0	6.7	6.9	6.9	6.7	6.2
	Tertiary education	3.3	3.2	3.1	2.7	2.7	3.5	3.5	3.9	3.7	3.7	3.3
Canada	Below upper secondary	12.9	11.9	10.8	10.2	10.5	11.0	10.9	10.2	9.8	9.3	9.5
	Upper secondary and post-secondary non-tertiary	8.1	7.5	6.7	5.9	6.3	6.7	6.5	6.2	5.9	5.6	5.4
	Tertiary education	5.4	4.7	4.5	4.1	4.7	5.1	5.2	4.8	4.6	4.1	3.9
Czech Republic	Below upper secondary	12.1	14.5	18.8	19.3	19.2	18.8	18.3	23.0	24.4	22.3	19.1
	Upper secondary and post-secondary non-tertiary	3.4	4.6	6.5	6.7	6.2	5.6	6.0	6.4	6.2	5.5	4.3
	Tertiary education	1.2	1.9	2.6	2.5	2.0	1.8	2.0	2.0	2.0	2.2	1.5
Denmark	Below upper secondary	m	7.0	7.0	6.9	6.2	6.4	6.7	8.2	6.5	5.5	4.2
	Upper secondary and post-secondary non-tertiary	m	4.6	4.1	3.9	3.7	3.7	4.4	4.8	4.0	2.7	2.5
	Tertiary education	m	3.3	3.0	3.0	3.6	3.9	4.7	4.4	3.7	3.2	2.9
Finland	Below upper secondary	15.6	13.8	13.1	12.1	11.4	12.2	11.2	11.3	10.7	10.1	8.9
	Upper secondary and post-secondary non-tertiary	11.9	10.6	9.5	8.9	8.5	8.8	8.3	7.9	7.4	7.0	6.1
	Tertiary education	6.5	5.8	4.7	4.7	4.4	4.5	4.1	4.5	4.4	3.7	3.6
France	Below upper secondary	15.0	14.9	15.3	13.9	11.9	11.8	10.4	10.7	11.1	11.0	10.2
	Upper secondary and post-secondary non-tertiary	9.6	9.6	9.2	7.9	6.9	6.8	6.6	6.7	6.6	6.6	5.9
	Tertiary education	7.0	6.6	6.1	5.1	4.8	5.2	5.3	5.7	5.4	5.1	4.9
Germany	Below upper secondary	15.4	15.4	15.9	13.9	13.5	15.3	18.0	20.4	20.2	19.9	18.0
	Upper secondary and post-secondary non-tertiary	9.9	10.3	8.8	8.1	8.2	9.0	10.2	11.2	11.0	9.9	8.3
	Tertiary education	5.7	5.5	5.0	4.2	4.2	4.5	5.2	5.6	5.5	4.8	3.8
Greece	Below upper secondary	6.5	7.5	8.4	8.0	7.7	7.4	7.1	8.2	8.2	7.2	7.1
	Upper secondary and post-secondary non-tertiary	9.6	10.7	11.4	11.3	10.2	10.1	9.5	10.0	9.3	8.7	8.0
	Tertiary education	7.3	6.3	7.8	7.4	6.9	6.7	6.1	7.2	7.0	6.1	5.8
Hungary	Below upper secondary	12.6	11.4	11.1	9.9	10.0	10.5	10.6	10.8	12.4	14.8	16.0
	Upper secondary and post-secondary non-tertiary	6.9	6.2	5.8	5.3	4.6	4.4	4.8	5.0	6.0	6.1	5.9
	Tertiary education	1.7	1.7	1.4	1.3	1.2	1.5	1.4	1.9	2.3	2.2	2.6
Iceland	Below upper secondary	4.4	3.2	2.0	2.6	2.6	3.2	3.3	2.5	2.3	c	3.5
	Upper secondary and post-secondary non-tertiary	2.7	c	c	c	c	c	c	c	c	c	3.4
	Tertiary education	c	c	c	c	c	c	c	c	c	c	2.2
Ireland	Below upper secondary	14.5	11.6	9.2	5.6	5.2	5.9	6.3	6.1	6.0	5.7	6.1
	Upper secondary and post-secondary non-tertiary	6.5	4.5	3.5	2.3	2.4	2.8	2.9	3.0	3.1	3.2	3.5
	Tertiary education	4.0	3.0	1.7	1.6	1.8	2.2	2.6	2.2	2.0	2.2	2.3
Italy	Below upper secondary	m	10.8	10.6	10.0	9.2	9.0	8.8	8.2	7.8	6.9	6.3
	Upper secondary and post-secondary non-tertiary	m	8.1	7.9	7.2	6.6	6.4	6.1	5.4	5.2	4.6	4.1
	Tertiary education	m	6.9	6.9	5.9	5.3	5.3	5.3	5.3	5.7	4.8	4.2
Japan	Below upper secondary	3.9	4.4	5.6	5.9	5.9	m	m	m	m	m	m
	Upper secondary and post-secondary non-tertiary	3.4	3.3	4.5	4.6	4.8	5.6	5.7	5.1	4.9	4.6	4.2
	Tertiary education	2.3	2.7	3.3	3.4	3.2	3.8	3.7	3.4	3.1	3.0	2.9
Korea	Below upper secondary	1.4	6.0	5.4	3.7	3.1	2.2	2.2	2.6	2.9	2.6	2.4
	Upper secondary and post-secondary non-tertiary	2.4	6.8	6.4	4.1	3.6	3.0	3.3	3.5	3.8	3.5	3.3
	Tertiary education	2.3	4.9	4.7	3.6	3.5	3.2	3.1	2.9	2.9	2.9	2.9
Luxembourg	Below upper secondary	m	m	3.4	3.1	1.7	3.8	3.3	5.7	5.1	4.9	4.1
	Upper secondary and post-secondary non-tertiary	m	m	1.1	1.4	1.0	1.2	2.6	3.7	3.2	3.8	2.8
	Tertiary education	m	m	c	c	c	1.8	4.0	3.2	3.2	2.9	3.0
Mexico	Below upper secondary	2.6	2.3	1.5	1.5	1.6	1.7	1.8	2.2	2.3	2.2	2.2
	Upper secondary and post-secondary non-tertiary	4.2	3.2	2.7	2.2	2.3	2.3	2.2	3.1	3.0	2.5	2.7
	Tertiary education	2.9	3.1	3.4	2.4	2.6	3.0	3.1	3.7	3.8	3.0	3.8
Netherlands	Below upper secondary	m	0.9	4.3	3.9	2.9	3.0	4.5	5.5	5.8	4.8	4.0
	Upper secondary and post-secondary non-tertiary	m	1.7	2.3	2.3	1.6	2.0	2.8	3.8	4.1	3.5	2.7
	Tertiary education	m	c	1.7	1.9	1.2	2.1	2.5	2.8	2.8	2.3	1.8

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664108032182

Table A6.4a. *(continued)*

Trends in unemployment rates by educational attainment (1997-2007)

Number of 25-64 year-olds unemployed as a percentage of the labour force aged 25 to 64, by level of educational attainment

			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
OECD countries	**New Zealand**	Below upper secondary	7.3	8.5	7.4	6.4	5.6	4.8	4.2	3.6	3.3	3.1	2.9
		Upper secondary and post-secondary non-tertiary	4.3	5.0	4.8	3.8	3.7	3.5	3.3	2.2	2.1	2.1	1.9
		Tertiary education	3.5	4.0	3.6	3.3	2.7	3.2	3.0	2.6	2.2	2.4	2.2
	Norway	Below upper secondary	4.0	2.9	2.5	2.2	3.4	3.4	3.9	4.0	7.3	4.7	3.3
		Upper secondary and post-secondary non-tertiary	3.1	2.4	2.5	2.6	2.7	2.9	3.6	3.8	2.6	2.1	1.3
		Tertiary education	1.7	1.5	1.4	1.9	1.7	2.1	2.5	2.4	2.1	1.8	1.4
	Poland	Below upper secondary	13.8	13.9	16.4	20.6	22.6	25.2	25.9	27.8	27.1	21.5	15.5
		Upper secondary and post-secondary non-tertiary	9.9	9.1	10.7	13.9	15.9	17.8	17.8	17.4	16.6	12.7	8.7
		Tertiary education	2.1	2.5	3.1	4.3	5.0	6.3	6.6	6.2	6.2	5.0	3.8
	Portugal	Below upper secondary	m	4.4	4.0	3.6	3.6	4.4	5.7	6.4	7.5	7.6	8.0
		Upper secondary and post-secondary non-tertiary	m	5.1	4.4	3.5	3.3	4.3	5.1	5.6	6.7	7.1	6.8
		Tertiary education	m	2.8	3.0	2.7	2.8	3.9	4.9	4.4	5.4	5.4	6.6
	Slovak Republic	Below upper secondary	22.4	24.3	30.3	36.3	38.7	42.3	44.9	47.7	49.2	44.0	41.3
		Upper secondary and post-secondary non-tertiary	8.5	8.8	11.9	14.3	14.8	14.2	13.5	14.6	12.7	10.0	8.5
		Tertiary education	2.8	3.3	4.0	4.6	4.2	3.6	3.7	4.8	4.4	2.6	3.3
	Spain	Below upper secondary	18.9	17.0	14.7	13.7	10.2	11.2	11.3	11.0	9.3	9.0	9.0
		Upper secondary and post-secondary non-tertiary	16.8	15.3	12.9	10.9	8.4	9.4	9.5	9.4	7.3	6.9	6.8
		Tertiary education	13.7	13.1	11.1	9.5	6.9	7.7	7.7	7.3	6.1	5.5	4.8
	Sweden	Below upper secondary	11.9	10.4	9.0	8.0	5.9	5.8	6.1	6.5	8.5	7.3	7.0
		Upper secondary and post-secondary non-tertiary	9.4	7.8	6.5	5.3	4.6	4.6	5.2	5.8	6.0	5.1	4.2
		Tertiary education	5.2	4.4	3.9	3.0	2.6	3.0	3.9	4.3	4.5	4.2	3.4
	Switzerland	Below upper secondary	6.0	5.7	4.7	4.8	3.4	4.3	5.9	7.1	7.2	7.5	6.7
		Upper secondary and post-secondary non-tertiary	3.1	2.9	2.5	2.2	2.1	2.4	3.2	3.7	3.7	3.3	3.0
		Tertiary education	4.4	2.8	1.7	1.4	1.3	2.2	2.9	2.8	2.7	2.2	2.1
	Turkey	Below upper secondary	4.4	4.4	5.3	4.6	6.7	8.5	8.8	8.1	8.7	8.3	8.2
		Upper secondary and post-secondary non-tertiary	6.3	6.6	8.2	5.5	7.4	8.7	7.8	10.1	9.2	9.0	8.8
		Tertiary education	3.9	4.8	5.1	3.9	4.7	7.5	6.9	8.2	6.9	6.9	6.9
	United Kingdom	Below upper secondary	8.4	7.5	7.1	6.6	6.1	6.0	5.2	5.3	5.1	6.3	6.5
		Upper secondary and post-secondary non-tertiary	5.5	4.4	4.4	4.0	3.5	3.6	3.5	3.3	3.1	3.8	3.9
		Tertiary education	3.1	2.6	2.6	2.1	2.0	2.4	2.3	2.2	2.1	2.2	2.3
	United States	Below upper secondary	10.4	8.5	7.7	7.9	8.1	10.2	9.9	10.5	9.0	8.3	8.5
		Upper secondary and post-secondary non-tertiary	4.8	4.5	3.7	3.6	3.8	5.7	6.1	5.6	5.1	4.6	4.5
		Tertiary education	2.3	2.1	2.1	1.8	2.1	3.0	3.4	3.3	2.6	2.5	2.1
	OECD average	***Below upper secondary***	***10.1***	***9.4***	***9.3***	***9.0***	***8.6***	***9.4***	***9.7***	***10.3***	***10.5***	***10.0***	***9.0***
		Upper secondary and post-secondary non-tertiary	***6.7***	***6.4***	***6.1***	***5.7***	***5.5***	***5.8***	***6.0***	***6.3***	***6.0***	***5.5***	***4.8***
		Tertiary education	***4.1***	***4.0***	***3.8***	***3.5***	***3.3***	***3.7***	***4.0***	***4.1***	***3.9***	***3.5***	***3.3***
	EU19 average	***Below upper secondary***	***13.3***	***11.4***	***11.4***	***11.1***	***10.6***	***11.4***	***11.7***	***12.8***	***13.0***	***12.1***	***11.1***
		Upper secondary and post-secondary non-tertiary	***8.4***	***7.4***	***6.9***	***6.6***	***6.3***	***6.5***	***6.8***	***7.1***	***6.8***	***6.2***	***5.4***
		Tertiary education	***4.7***	***4.4***	***4.1***	***3.8***	***3.5***	***3.8***	***4.1***	***4.3***	***4.2***	***3.7***	***3.5***
Partner countries	**Brazil**	Below upper secondary	m	m	m	m	m	m	m	m	m	m	5.6
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	m	m	m	m	m	7.0
		Tertiary education	m	m	m	m	m	m	m	m	m	m	3.3
	Estonia	Below upper secondary	m	m	m	m	m	19.0	14.8	15.4	13.0	11.7	8.6
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	10.5	9.5	9.5	8.4	5.7	4.6
		Tertiary education	m	m	m	m	m	5.8	6.5	5.0	3.8	3.2	2.4
	Israel	Below upper secondary	m	m	m	m	m	14.0	15.2	15.6	14.0	12.8	12.4
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	9.8	10.3	10.6	9.5	8.7	7.2
		Tertiary education	m	m	m	m	m	6.4	6.4	6.1	5.1	4.5	3.8
	Slovenia	Below upper secondary	m	m	m	m	m	8.4	8.7	8.4	8.7	7.0	6.5
		Upper secondary and post-secondary non-tertiary	m	m	m	m	m	5.2	5.5	5.3	5.7	5.6	4.3
		Tertiary education	m	m	m	m	m	2.3	3.0	2.8	3.0	3.0	3.2

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664108032182

INDICATOR A7

WHAT ARE THE ECONOMIC BENEFITS OF EDUCATION?

This indicator examines the relative earnings of workers with different levels of educational attainment in 25 OECD countries and the partner countries Brazil, Israel and Slovenia. Differences in pre-tax earnings between educational groups provide a good indication of supply and demand for education. Combined with data on earnings over time, these differences provide a strong signal of whether education systems are aligned with labour market demands.

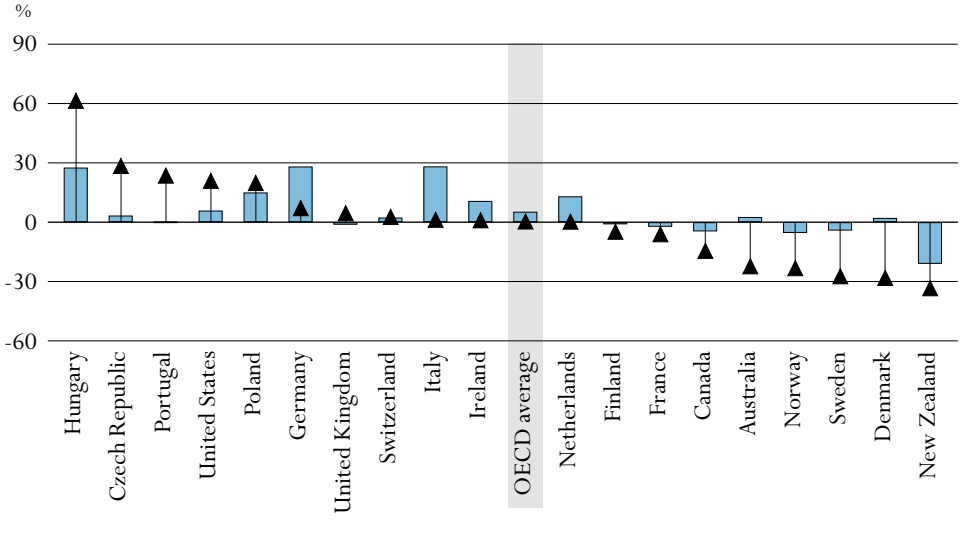
Key results

Chart A7.1. Average relative earnings growth at the tertiary level of education between 1997 and 2007 and average relative earnings at the tertiary level of education deviation from the OECD average (2007)

Growth in percentage point between 1997 and 2007 average

Deviation from OECD-19 average 2007

Earnings for those with tertiary education relative to upper secondary education provide a good gauge of the supply and demand for individuals with higher education, as well as the incentives to invest in higher education. Some countries have experienced a large increase in the earnings premium for tertiary educated individuals over the period. In Germany, Hungary, and Italy, relative earnings have increased by over 20 percentage points and consequently placed all three countries above the average earnings premium across OECD countries. Tertiary educated individuals in Canada, New Zealand, Norway and Sweden, have seen their relative earnings fall and this has pulled their earnings premium further below the OECD average. Those with tertiary education in the Czech Republic, Poland, Portugal, and the United States continue to experience high rewards for obtaining higher education.



Note: Difference between relative earnings at the tertiary level of education average for years 1997/1998/1999 and average for years 2005/2006/2007.
Difference between relative earnings at the tertiary level of education average for years 2005/2006/2007 for each country and the OECD average based on 19 countries with available data.
Countries are ranked in descending order of deviation from the OECD average.
Source: OECD. Table A7.2a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664140647056

Other highlights of this indicator

- Earnings increase with each level of education. Those who have attained upper secondary, post-secondary non-tertiary or tertiary education enjoy substantial earnings advantages compared with those of the same gender who have not completed upper secondary education. The earnings premium for tertiary education is substantial in most countries and exceeds 50% in 17 out of 28 countries.

- Males with a degree from a tertiary-type A or advanced research programme have a significant earnings premium in Hungary and the partner country Brazil, where the earnings premium exceeds 100% with a substantial margin; and in the Czech Republic, Poland, Portugal and the United States, and the partner country Israel where these individuals earn 80% or more than those with upper secondary and post-secondary non-tertiary education. In Hungary, Ireland, Korea, the United Kingdom and the partner country Brazil, females have a similar advantage.

- The educational earnings advantage increases with age. Tertiary earnings are relatively higher at an older age in all countries except Australia, Italy, New Zealand, Turkey, the United Kingdom and the partner country Israel. For those with below upper secondary education the earnings disadvantage generally increases with age.

- With few exceptions, females earn less than males with similar levels of educational attainment. For all levels of education, average earnings of females between the ages of 30 and 44 range from 51% of those of males in Korea to 88% in the partner country Slovenia. However, for females with below upper secondary education in New Zealand and the United States and for those with an upper secondary education in the Czech Republic, the earnings gap has closed by more than 10 percentage points over the past decade.

Policy context

One way in which markets provide incentives for individuals to develop and maintain appropriate skills is through wage differentials, in particular through the higher earnings of persons with higher levels of education. At the same time, education involves costs that must be balanced against these higher earnings. This indicator examines relative earnings associated with different levels of education and the variation in these earnings over time.

The earnings premium for different educational levels not only provides incentives to invest in education but also carries information on the supply of and demand for education. High and rising earnings premiums can, in many circumstances, indicate that higher educated individuals are in short supply, and of course the reverse is the case for low and falling premiums. The consequence of having too few higher educated individuals in the labour market is rising income inequalities and if sustained, a short supply could eventually price those with higher education out of the global high-end skills market.

Nevertheless, in a longer-term perspective, either price signal will eventually lead to adjustments of the supply of educated individuals to that of the demand-side. Relative earnings, and trend data on the earnings premium in particular, are thus important indicators of the match between the education system and the labour market.

Evidence and explanations

Earnings differentials and educational attainment

Earnings differentials are key measures of the financial incentives available for an individual to invest in further education. They may also reflect differences in the supply of educational programmes at different levels (or barriers to access to those programmes). The earnings benefit of completing tertiary education can be seen by comparing the average annual earnings of those who graduate from tertiary education with the average annual earnings of upper secondary or post-secondary non-tertiary graduates. The earnings disadvantage resulting from not completing upper secondary education is apparent in a similar comparison of average earnings.

Variations among countries in relative earnings (before taxes) reflect a number of factors, including the demand for skills in the labour market, minimum wage legislation, the strength of unions, the coverage of collective bargaining agreements, the supply of workers at various levels of educational attainment, and the relative incidence of part-time and seasonal work.

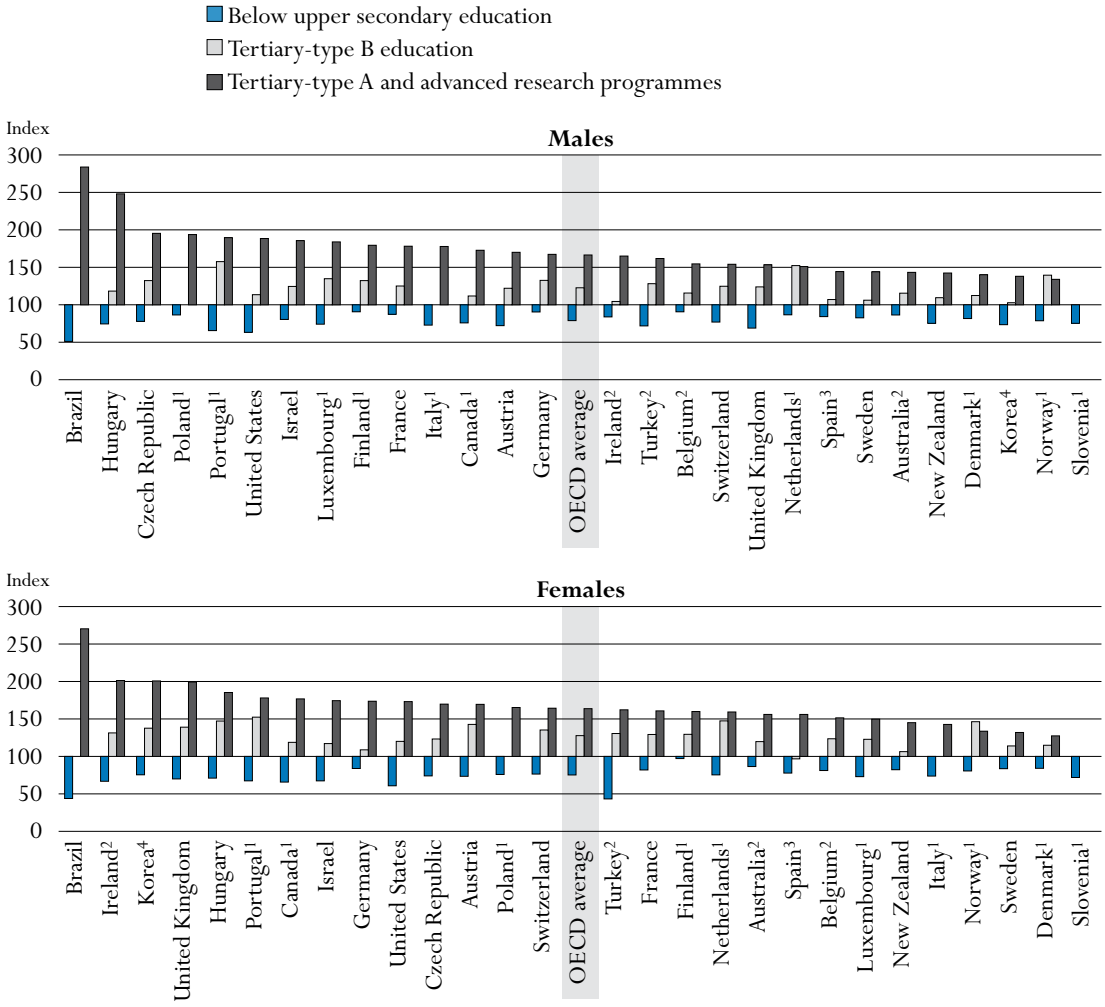
Still, earnings differentials are among the more straightforward indications as to whether the supply of educated individuals meets demand, particularly in the light of changes over time. Chart A7.2 shows a strong positive relationship between educational attainment and average earnings. In all countries, graduates of tertiary education earn more overall than upper secondary and post-secondary non-tertiary graduates.

Earnings differentials between those with tertiary education – especially tertiary-type A and advanced research programmes – and those with upper secondary education are generally more pronounced than the differentials between upper secondary and lower secondary or below. This suggests that in many countries, upper secondary (and, with a small number of exceptions, post-secondary non-tertiary) education forms a dividing line beyond which additional education attracts a particularly high premium. As private investment costs beyond upper secondary education typically rise considerably in most countries, a high premium assures an adequate supply of individuals willing to invest time and money in further education.

Males with a degree from a tertiary-type A or advanced research programme have a substantial earnings premium in Hungary and the partner country Brazil, where the earnings premium exceeds 100% with a substantial margin. In the Czech Republic, Poland, Portugal and the United States, and the partner country Israel tertiary educated individuals earn 80% or more than those with upper secondary and post-secondary non-tertiary education. Females have a similar advantage in Hungary, Ireland, Korea, the United Kingdom and the partner country Brazil.

Chart A7.2. Relative earnings from employment (2007 or latest available year)

By level of educational attainment and gender for 25-64 year-olds (upper secondary and post-secondary non-tertiary education = 100) latest available year



1. Year of reference 2006.
2. Year of reference 2005.
3. Year of reference 2004.
4. Year of reference 2003.

Countries are ranked in descending order of the relative earnings of the population with a tertiary-type A (including advanced research programmes) level of educational attainment.

Source: OECD. Table A7.1a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664140647056

Females with below secondary education are particularly disadvantaged in Canada, Ireland, Portugal, Turkey, the United Kingdom, the United States and the partner countries Brazil and Israel, with only 70% or less of upper secondary earnings. In Portugal, the United Kingdom, the United States and the partner country Brazil males with below upper secondary education are in a similar situation.

The relative earnings premium for those with tertiary education has been on the rise in most countries over the past ten years, indicating that the demand for more educated individuals still exceeds supply in most countries (Table A7.2a). In Germany, Hungary and Italy, the earnings premium has increased substantially during this period. At the same time, in these countries tertiary attainment levels are also low compared to the OECD average (see Indicator A1).

Some countries have seen a decline in the earnings premium over the past ten years. New Zealand, Norway, Sweden and the United Kingdom have seen a decrease in the earnings premiums for those with tertiary education. Whether this is an indication of weakening demand or whether these figures reflect the fact that younger tertiary educated individuals with relatively low starting salaries have entered the labour market, is difficult to know.

Education and earnings over age

Table A7.1a shows how relative earnings vary with age. The difference in relative earnings for those with a tertiary education at age 55 to 64 compared with the total population (25-64 year-olds) is generally larger; on average, the earnings differential increases by 13 index points. These benefits of education are shown in Chart A7.3. While employment opportunities at an older age improve for those with tertiary education in most countries (see Indicator A6), the earnings advantages also increase. Earnings are relatively higher for older individuals in all countries except Australia, Italy, New Zealand, Turkey, the United Kingdom and the partner country Israel.

Earnings relative to upper secondary and post-secondary non-tertiary education

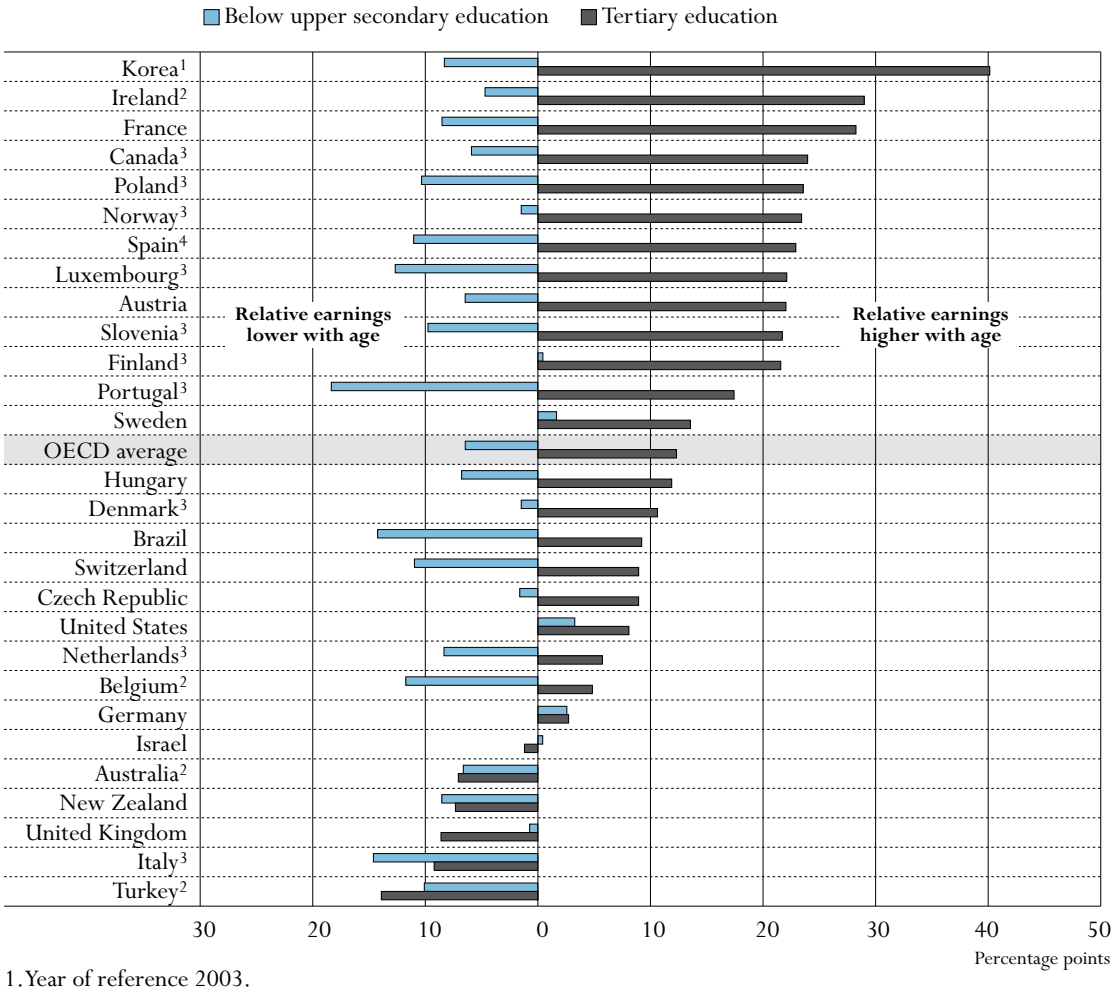
For those with below upper secondary education, the earnings disadvantage increases with age in all countries except Finland, Germany, Sweden, the United States and the partner country Israel. The increasing earnings disadvantage, for those at an older age with below upper secondary education is less marked than the earnings advantage for those with a tertiary education, which indicates that tertiary education is a key to higher earnings at an older age. In most countries, then, tertiary education not only increases the prospect of being employed at an older age, but is also associated with improving earnings and productivity differentials throughout the working life.

Education and gender disparity in earnings

For 25-64 year-olds, financial rewards from tertiary education benefit females more than males in Australia, Austria, Canada, Germany, Ireland, Korea, the Netherlands, Norway, Spain, Switzerland and the United Kingdom. The reverse is true in the remaining countries, with the exception of Turkey, where – relative to upper secondary education – the earnings of males and females are equally enhanced by tertiary education (Table A7.1a).

Chart A7.3. Difference in relative earnings for the 55-64 year-olds and 25-64 year-olds (2007 or latest available year)

Earnings relative to upper secondary and post-secondary non-tertiary education



1. Year of reference 2003.
2. Year of reference 2005.
3. Year of reference 2006.
4. Year of reference 2004.

Countries are ranked in descending order of the difference in relative earnings for the 55-64 year-old population and total population (25-64 year-olds) at the tertiary level of education.

Source: OECD. Table A7.1a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

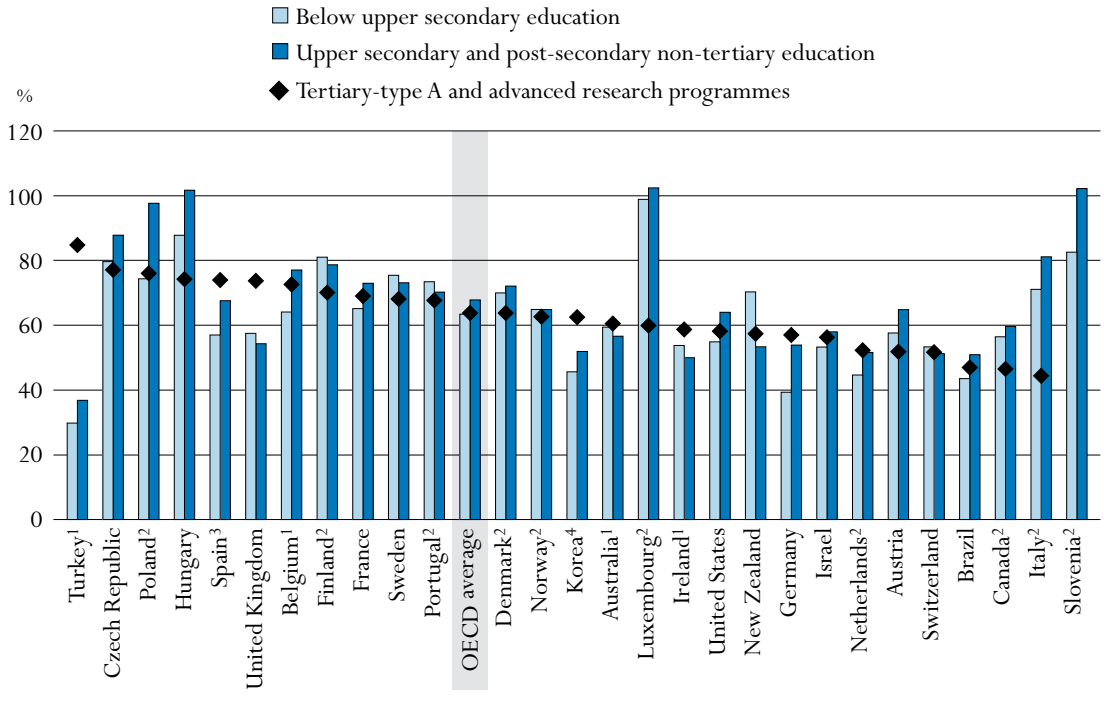
StatLink http://dx.doi.org/10.1787/664140647056

Both males and females with upper secondary, post-secondary non-tertiary or tertiary attainment have substantial earnings advantages (compared with those of the same gender who do not complete upper secondary education), but earnings differentials between males and females with the same educational attainment remain substantial. In all countries, considering all levels of educational attainment, females in the 30-44 year-old age group earn less than their male counterparts (Table A7.1b, available on line). For all levels of education taken together (*i.e.* dividing total earnings by the total number of income earners, by gender), average earnings of females between the ages of 30 and 44 range from 51% of those of males in Korea, to 88% in the partner country Slovenia.

This relative differential must be interpreted with caution, however, since in most countries earnings data include part-time work, which is often a major characteristic of female employment and is likely to vary significantly from one country to another. In Hungary, Luxembourg and Poland, where part-time work and part-year earnings are excluded from the calculations, earnings of females between the ages of 30 and 44 reach 82%, 85% and 78%, respectively, of those of males.

Chart A7.4. Differences in earnings between females and males (2007 or latest available year)

Average earnings of females as a percentage of those of males (55-64 year-olds), by level of educational attainment



1. Year of reference 2005.
2. Year of reference 2006.
3. Year of reference 2004.
4. Year of reference 2003.

Note: Data on earnings for individuals in part-time work are excluded for the Czech Republic, Hungary, Luxembourg, Poland, Portugal and Slovenia while data on part-year earnings are excluded for Hungary, Luxembourg, Portugal and Slovenia.

Source: OECD. Table A7.1b, available on line. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664140647056

The gap in earnings between males and females presented in Chart A7.4 is due in part to differences in occupations, in the amount of time spent in the labour force, and in the incidence of part-time work. However, among 55-64 year-olds, the gap between male and female earnings is wide in most countries. Notable exceptions are females with an upper secondary and post-secondary non-tertiary education in Hungary, Luxembourg, Poland and the partner country Slovenia and females with below upper secondary education in Luxembourg who earn as much as their male counterparts.

While the overall earnings gap between males and females is generally more pronounced for the oldest age cohort, the earnings differentials between males and females in general have narrowed in some countries in recent years (Table A7.3). The most noticeable changes have taken place for females with below upper secondary education in New Zealand and the United States and for those with an upper secondary education in the Czech Republic, where the earnings gap has closed by more than 10 percentage points over the past decade.

Definitions and methodologies

Earnings data in Table A7.1a are based on an annual reference period in Austria, Canada, the Czech Republic, Denmark, Finland, Ireland, Italy, Korea, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Turkey and the United States, and in the partner countries Brazil and Slovenia. Earnings are reported weekly in Australia, New Zealand and the United Kingdom, and monthly in Belgium, France, Germany, Hungary, Poland and Switzerland, and the partner country Israel. Data on earnings are before income tax, while earnings for Belgium, Korea and Turkey are net of income tax. Data on earnings for individuals in part-time work are excluded for the Czech Republic, Hungary, Luxembourg Poland, Portugal and Slovenia, while data on part-year earnings are excluded for Hungary, Luxembourg, Poland and Slovenia.

The earnings data shown in this indicator differ across countries in a number of ways. The results should therefore be interpreted with caution. In particular, in countries reporting annual earnings, differences in the incidence of seasonal work among individuals with different levels of educational attainment will have an effect on relative earnings that is not reflected in the data for countries reporting weekly or monthly earnings. Similarly, the prevalence of part-time and part-year earnings in most countries suggest that caution is needed in interpreting earnings differentials in countries, particularly between males and females.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/664140647056

- ***Table A7.1b. Differences in earnings between females and males (2007 or latest available year)***
- ***Table A7.4a. Distribution of the 25-64 year-old population, by level of earnings and educational attainment (2007 or latest available year)***
- ***Table A7.4b. Distribution of the 25-64 year-old male population, by level of earnings and educational attainment (2007 or latest available year)***
- ***Table A7.4c. Distribution of the 25-64 year-old female population by level of earnings and educational attainment (2007 or latest available year)***

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Table A7.1a.

Relative earnings of the population with income from employment (2007 or latest available year)

By level of educational attainment and gender of 25-64 year-olds, 25-34 year-olds and 55-64 year-olds (upper secondary and post-secondary non-tertiary education = 100)

OECD countries			Below upper secondary education			Post-secondary non-tertiary education			Tertiary-type B education			Tertiary-type A and advanced research programmes			All tertiary education		
			25-64	25-34	55-64	25-64	25-34	55-64	25-64	25-34	55-64	25-64	25-34	55-64	25-64	25-34	55-64
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Australia	2005	Males	86	90	81	105	107	104	115	116	113	143	127	143	136	124	133
	2005	Females	86	82	85	104	99	105	120	115	123	156	149	154	146	142	143
	2005	M+F	81	88	74	96	98	94	110	112	106	139	131	134	131	126	124
Austria	2007	Males	72	71	70	132	113	140	122	111	118	170	137	220	151	129	177
	2007	Females	73	69	62	125	128	132	143	118	155	169	160	176	160	149	167
	2007	M+F	67	68	60	122	114	131	130	113	127	170	143	212	155	134	177
Belgium	2005	Males	91	95	82	98	95	108	116	111	113	155	135	156	137	124	139
	2005	Females	81	85	68	108	105	103	124	122	117	151	144	147	134	131	128
	2005	M+F	89	95	78	100	98	102	115	112	112	155	137	160	133	123	138
Canada	2006	Males	76	84	70	111	118	106	112	123	124	173	152	212	142	137	175
	2006	Females	66	67	67	101	106	106	119	122	117	177	177	166	146	151	139
	2006	M+F	75	83	69	110	113	108	111	118	118	171	155	206	140	137	164
Czech Republic	2007	Males	78	81	77	m	m	m	132	125	136	195	162	200	192	158	198
	2007	Females	74	78	70	m	m	m	123	117	135	170	155	176	165	148	173
	2007	M+F	73	79	71	m	m	m	122	114	132	187	157	194	183	151	191
Denmark	2006	Males	82	80	83	92	44	94	112	118	111	140	112	152	133	113	143
	2006	Females	84	77	81	85	40	92	115	127	111	127	122	134	126	123	131
	2006	M+F	82	81	81	97	45	104	115	122	112	128	110	142	125	112	136
Finland	2006	Males	91	89	92	m	m	m	132	129	133	179	140	216	162	138	181
	2006	Females	97	90	95	m	m	m	129	128	126	160	148	193	146	144	155
	2006	M+F	94	93	95	m	m	m	124	116	128	167	133	212	149	130	170
France	2007	Males	87	91	82	125	94	157	125	122	132	178	150	196	158	138	182
	2007	Females	82	96	73	88	104	73	129	132	132	161	154	185	147	144	166
	2007	M+F	84	94	76	94	94	81	123	122	127	168	147	197	150	136	178
Germany	2007	Males	90	91	93	109	118	111	133	127	131	167	152	160	158	148	151
	2007	Females	84	74	68	114	112	121	109	120	110	174	159	169	159	153	161
	2007	M+F	91	89	93	107	109	103	131	119	148	172	151	169	162	146	164
Hungary	2007	Males	74	77	71	128	121	132	118	99	103	248	217	255	247	216	255
	2007	Females	71	75	61	115	113	114	147	116	182	185	177	187	185	177	187
	2007	M+F	72	76	65	120	117	122	134	106	154	211	193	223	211	193	223
Ireland	2005	Males	84	88	76	96	124	76	104	95	140	165	136	204	147	125	187
	2005	Females	67	55	82	93	113	93	131	121	126	201	183	240	178	166	201
	2005	M+F	86	84	81	95	122	80	110	102	124	175	150	210	155	137	184
Italy	2006	Males	73	88	65	m	m	m	m	m	m	178	130	189	178	130	189
	2006	Females	74	81	57	m	m	m	m	m	m	143	130	104	143	130	104
	2006	M+F	76	91	61	m	m	m	m	m	m	155	124	146	155	124	146
Korea	2003	Males	73	87	71	m	m	m	103	99	64	138	127	182	127	117	169
	2003	Females	75	126	62	m	m	m	138	121	131	201	165	219	176	148	206
	2003	M+F	67	100	58	m	m	m	111	105	70	156	138	195	141	125	181
Luxembourg	2006	Males	74	80	62	m	m	m	135	129	140	184	154	236	158	142	183
	2006	Females	73	71	60	m	m	m	123	124	110	150	146	138	134	133	121
	2006	M+F	74	78	62	m	m	m	132	127	136	177	152	225	153	139	175
Netherlands	2006	Males	87	92	82	100	100	100	152	150	148	151	136	157	151	136	157
	2006	Females	75	76	71	100	100	100	147	157	137	159	151	159	159	151	159
	2006	M+F	85	91	77	100	100	100	153	151	159	154	140	160	154	140	160
New Zealand	2007	Males	75	83	66	104	111	93	109	103	89	142	140	139	130	128	121
	2007	Females	82	76	87	95	111	88	106	101	115	145	140	150	127	126	128
	2007	M+F	75	80	67	115	119	106	98	95	86	137	133	140	121	120	113

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664140647056

Table A7.1a. *(continued)*

Relative earnings of the population with income from employment (2007 or latest available year)

By level of educational attainment and gender of 25-64 year-olds, 25-34 year-olds and 55-64 year-olds
(upper secondary and post-secondary non-tertiary education = 100)

				Below upper secondary education			Post-secondary non-tertiary education			Tertiary-type B education			Tertiary-type A and advanced research programmes			All tertiary education		
				25-64	25-34	55-64	25-64	25-34	55-64	25-64	25-34	55-64	25-64	25-34	55-64	25-64	25-34	55-64
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD countries	**Norway**	2006	Males	79	76	77	116	109	123	139	124	142	133	106	153	134	107	151
		2006	Females	81	76	77	117	113	129	146	143	149	134	127	148	134	127	148
		2006	M+F	78	76	77	122	117	129	149	126	165	127	107	151	129	108	152
	Poland	2006	Males	86	85	79	114	110	119	m	m	m	194	169	216	194	169	216
		2006	Females	76	82	60	116	115	112	m	m	m	165	157	168	165	157	168
		2006	M+F	84	86	73	109	106	114	m	m	m	173	155	197	173	155	197
	Portugal	2006	Males	66	74	49	95	97	92	158	148	161	190	170	201	183	165	192
		2006	Females	67	73	51	105	109	105	152	150	147	178	173	194	173	169	179
		2006	M+F	68	76	50	99	103	95	155	148	157	182	168	206	177	164	194
	Spain	2004	Males	84	94	76	83	100	m	107	111	143	144	130	155	132	123	153
		2004	Females	78	86	64	95	103	177	97	106	120	156	154	170	141	139	162
		2004	M+F	85	94	74	89	104	133	104	108	138	144	135	158	132	126	155
	Sweden	2007	Males	83	79	83	123	85	125	106	97	113	144	117	159	135	113	147
		2007	Females	84	77	86	109	85	127	114	94	121	132	126	148	127	121	138
		2007	M+F	84	79	86	122	83	133	105	95	112	134	116	153	126	112	140
	Switzerland	2007	Males	77	81	68	109	84	134	125	118	113	154	126	165	144	123	147
		2007	Females	76	74	70	118	104	160	135	144	137	164	161	167	156	157	158
		2007	M+F	75	78	64	113	91	149	140	132	133	168	140	185	159	138	168
	Turkey	2005	Males	72	77	60	m	m	m	128	154	121	162	178	133	153	171	129
		2005	Females	43	37	49	m	m	m	131	93	m	162	150	307	154	133	307
		2005	M+F	69	70	59	m	m	m	125	131	128	157	166	138	149	156	135
	United Kingdom	2007	Males	69	68	70	m	m	m	124	112	115	153	148	147	145	140	137
		2007	Females	70	67	74	m	m	m	139	131	149	199	191	200	181	179	183
		2007	M+F	70	72	70	m	m	m	127	116	123	169	160	161	157	151	148
	United States	2007	Males	63	69	69	111	108	106	113	119	112	188	171	188	180	165	181
		2007	Females	61	59	59	109	106	114	120	121	112	173	169	171	167	165	165
		2007	M+F	65	69	68	109	105	110	114	117	113	180	164	188	172	160	181
	OECD average		***Males***	***79***	***83***	***74***	***108***	***102***	***113***	***123***	***119***	***122***	***167***	***145***	***181***	***156***	***139***	***168***
			Females	***75***	***76***	***70***	***105***	***104***	***114***	***128***	***123***	***130***	***164***	***155***	***175***	***153***	***146***	***163***
			M+F	***78***	***83***	***71***	***107***	***102***	***111***	***123***	***118***	***127***	***162***	***144***	***178***	***152***	***138***	***164***
Partner countries	**Brazil**	2007	Males	51	58	38	m	m	m	m	m	m	284	251	282	284	251	282
		2007	Females	44	50	32	m	m	m	m	m	m	270	268	261	270	268	261
		2007	M+F	51	58	37	m	m	m	m	m	m	268	248	277	268	248	277
	Israel	2007	Males	80	77	83	125	122	120	124	123	125	186	170	182	165	155	163
		2007	Females	67	55	76	138	159	173	117	120	111	174	176	177	155	161	151
		2007	M+F	83	79	83	127	130	132	115	115	112	172	160	175	153	147	152
	Slovenia	2006	Males	75	77	67	m	m	m	m	m	m	m	m	m	210	173	228
		2006	Females	72	77	54	m	m	m	m	m	m	m	m	m	188	169	192
		2006	M+F	74	79	64	m	m	m	m	m	m	m	m	m	193	162	215

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664140647056

Table A7.2a.

Trends in relative earnings: adult population (1997-2007)

By educational attainment, for 25-64 year-olds (upper secondary and post-secondary non-tertiary education = 100)

			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
OECD countries	**Australia**	Below upper secondary	79	m	80	m	77	m	m	m	81	m	m
		Tertiary	124	m	134	m	133	m	m	m	131	m	m
	Austria	Below upper secondary	m	m	m	m	m	m	m	m	71	66	67
		Tertiary	m	m	m	m	m	m	m	m	152	157	155
	Belgium	Below upper secondary	m	m	m	92	m	91	89	90	89	m	m
		Tertiary	m	m	m	128	m	132	130	134	133	m	m
	Canada	Below upper secondary	m	77	80	79	76	77	78	78	77	75	m
		Tertiary	m	143	144	145	146	139	140	139	138	140	m
	Czech Republic	Below upper secondary	68	68	68	m	m	m	m	73	72	74	73
		Tertiary	179	179	179	m	m	m	m	182	181	183	183
	Denmark	Below upper secondary	85	86	86	m	87	88	82	82	82	82	m
		Tertiary	123	124	124	m	124	124	127	126	125	125	m
	Finland	Below upper secondary	97	96	96	95	95	95	94	94	m	94	m
		Tertiary	148	148	153	153	150	150	148	149	m	149	m
	France	Below upper secondary	84	84	84	m	m	84	84	85	86	85	84
		Tertiary	149	150	150	m	m	150	146	147	144	149	150
	Germany	Below upper secondary	81	78	79	75	m	77	87	88	88	90	91
		Tertiary	133	130	135	143	m	143	153	153	156	164	162
	Hungary	Below upper secondary	68	68	70	71	71	74	74	73	73	73	72
		Tertiary	179	184	200	194	194	205	219	217	215	219	211
	Ireland	Below upper secondary	75	79	m	89	m	76	m	85	86	m	m
		Tertiary	146	142	m	153	m	144	m	169	155	m	m
	Italy	Below upper secondary	m	58	m	78	m	78	m	79	m	76	m
		Tertiary	m	127	m	138	m	153	m	165	m	155	m
	Korea	Below upper secondary	m	78	m	m	m	m	67	m	m	m	m
		Tertiary	m	135	m	m	m	m	141	m	m	m	m
	Luxembourg	Below upper secondary	m	m	m	m	m	78	m	m	m	74	m
		Tertiary	m	m	m	m	m	145	m	m	m	153	m
	Netherlands	Below upper secondary	83	m	m	m	m	84	m	m	m	85	m
		Tertiary	141	m	m	m	m	148	m	m	m	154	m
	New Zealand	Below upper secondary	77	76	76	74	74	m	76	74	78	78	75
		Tertiary	148	136	139	133	133	m	127	121	125	115	121
	Norway	Below upper secondary	85	84	84	m	79	79	78	78	78	78	m
		Tertiary	138	132	133	m	131	130	131	130	129	129	m
	Poland	Below upper secondary	m	84	82	m	81	81	m	82	m	84	m
		Tertiary	m	156	161	m	166	172	m	179	m	173	m
	Portugal	Below upper secondary	62	62	62	m	m	m	m	67	67	68	m
		Tertiary	176	177	178	m	m	m	m	178	177	177	m
	Spain	Below upper secondary	76	80	m	m	78	m	m	85	m	m	m
		Tertiary	149	144	m	m	129	m	m	132	m	m	m
	Sweden	Below upper secondary	90	89	89	m	86	87	87	87	86	85	84
		Tertiary	129	130	131	m	131	130	128	127	126	126	126
	Switzerland	Below upper secondary	70	73	75	75	76	75	74	74	75	74	75
		Tertiary	155	155	153	152	155	154	156	156	155	156	159
	Turkey	Below upper secondary	m	m	m	m	m	m	m	65	69	m	m
		Tertiary	m	m	m	m	m	m	m	141	149	m	m
	United Kingdom	Below upper secondary	69	66	69	69	70	68	69	69	71	71	70
		Tertiary	158	157	162	160	160	157	162	157	158	160	157
	United States	Below upper secondary	70	67	65	65	m	66	66	65	67	66	65
		Tertiary	168	173	166	172	m	172	172	172	175	176	172
Partner countries	**Brazil**	Below upper secondary	m	m	m	m	m	m	m	m	m	m	51
		Tertiary	m	m	m	m	m	m	m	m	m	m	268
	Israel	Below upper secondary	m	m	m	m	m	m	m	m	79	78	83
		Tertiary	m	m	m	m	m	m	m	m	151	151	153
	Slovenia	Below upper secondary	m	m	m	m	m	m	m	73	m	74	m
		Tertiary	m	m	m	m	m	m	m	198	m	193	m

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664140647056

Table A7.2b.

Trends in relative earnings: male population (1997-2007)

By educational attainment, for 25-64 year-olds (upper secondary and post-secondary non-tertiary education = 100)

			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
OECD countries	**Australia**	Below upper secondary	87	m	86	m	84	m	m	m	86	m	m
		Tertiary	136	m	139	m	142	m	m	m	136	m	m
	Austria	Below upper secondary	m	m	m	m	m	m	m	m	76	72	72
		Tertiary	m	m	m	m	m	m	m	m	149	155	151
	Belgium	Below upper secondary	m	m	m	93	m	92	90	91	91	m	m
		Tertiary	m	m	m	128	m	132	132	137	137	m	m
	Canada	Below upper secondary	m	77	80	80	76	79	79	78	78	76	m
		Tertiary	m	143	144	151	150	143	143	140	140	142	m
	Czech Republic	Below upper secondary	75	75	75	m	m	m	m	79	79	81	78
		Tertiary	178	178	178	m	m	m	m	193	190	194	192
	Denmark	Below upper secondary	86	87	87	m	87	87	82	82	82	82	m
		Tertiary	130	132	133	m	132	131	134	133	133	133	m
	Finland	Below upper secondary	94	93	93	92	92	92	92	91	m	91	m
		Tertiary	159	159	167	169	163	163	160	161	m	162	m
	France	Below upper secondary	88	88	88	m	m	88	88	89	90	89	87
		Tertiary	158	159	159	m	m	159	151	154	152	157	158
	Germany	Below upper secondary	88	77	80	80	m	84	90	91	93	92	90
		Tertiary	131	126	138	141	m	140	150	149	151	163	158
	Hungary	Below upper secondary	74	72	73	75	75	78	77	76	76	75	74
		Tertiary	213	218	238	232	232	245	255	253	253	259	247
	Ireland	Below upper secondary	72	78	m	84	m	71	m	85	84	m	m
		Tertiary	131	131	m	138	m	141	m	171	147	m	m
	Italy	Below upper secondary	m	54	m	71	m	74	m	78	m	73	m
		Tertiary	m	138	m	143	m	162	m	188	m	178	m
	Korea	Below upper secondary	m	88	m	m	m	m	73	m	m	m	m
		Tertiary	m	132	m	m	m	m	127	m	m	m	m
	Luxembourg	Below upper secondary	m	m	m	m	m	79	m	m	m	74	m
		Tertiary	m	m	m	m	m	149	m	m	m	158	m
	Netherlands	Below upper secondary	86	m	m	m	m	84	m	m	m	87	m
		Tertiary	139	m	m	m	m	143	m	m	m	151	m
	New Zealand	Below upper secondary	82	76	76	76	76	m	m	m	m	76	75
		Tertiary	148	137	140	130	130	m	137	129	131	120	130
	Norway	Below upper secondary	85	85	85	m	80	80	79	79	78	79	m
		Tertiary	138	133	135	m	134	133	134	134	134	134	m
	Poland	Below upper secondary	m	86	85	m	85	84	m	86	m	86	m
		Tertiary	m	175	182	m	185	194	m	204	m	194	m
	Portugal	Below upper secondary	60	61	60	m	m	m	m	64	64	66	m
		Tertiary	178	178	180	m	m	m	m	183	183	183	m
	Spain	Below upper secondary	78	82	m	m	79	m	m	84	m	m	m
		Tertiary	154	152	m	m	138	m	m	132	m	m	m
	Sweden	Below upper secondary	88	87	87	m	84	85	85	85	84	83	83
		Tertiary	135	136	138	m	141	139	137	135	135	135	135
	Switzerland	Below upper secondary	79	80	80	79	84	79	78	78	80	78	77
		Tertiary	135	136	134	135	140	137	140	139	140	138	144
	Turkey	Below upper secondary	m	m	m	m	m	m	m	67	72	m	m
		Tertiary	m	m	m	m	m	m	m	139	153	m	m
	United Kingdom	Below upper secondary	77	75	76	74	73	72	71	70	72	73	69
		Tertiary	147	149	155	152	147	147	152	146	146	148	145
	United States	Below upper secondary	69	65	63	64	m	63	63	62	64	63	63
		Tertiary	168	176	167	178	m	178	177	179	183	183	180
Partner countries	**Brazil**	Below upper secondary	m	m	m	m	m	m	m	m	m	m	51
		Tertiary	m	m	m	m	m	m	m	m	m	m	284
	Israel	Below upper secondary	m	m	m	m	m	m	m	m	74	76	80
		Tertiary	m	m	m	m	m	m	m	m	159	166	165
	Slovenia	Below upper secondary	m	m	m	m	m	m	m	74	m	75	m
		Tertiary	m	m	m	m	m	m	m	217	m	210	m

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A7.2c.

Trends in relative earnings: female population (1997-2007)

By educational attainment, for 25-64 year-olds (upper secondary and post-secondary non-tertiary education = 100)

			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
OECD countries	**Australia**	Below upper secondary	85	m	89	m	84	m	m	m	86	m	m
		Tertiary	137	m	146	m	146	m	m	m	146	m	m
	Austria	Below upper secondary	m	m	m	m	m	m	m	m	74	71	73
		Tertiary	m	m	m	m	m	m	m	m	156	158	160
	Belgium	Below upper secondary	m	m	m	82	m	83	81	82	81	m	m
		Tertiary	m	m	m	132	m	140	132	137	134	m	m
	Canada	Below upper secondary	m	68	68	69	66	65	68	69	68	66	m
		Tertiary	m	147	145	145	149	141	144	147	144	146	m
	Czech Republic	Below upper secondary	72	72	72	m	m	m	m	73	72	73	74
		Tertiary	170	170	170	m	m	m	m	160	161	163	165
	Denmark	Below upper secondary	88	89	90	m	90	90	85	85	84	84	m
		Tertiary	122	124	123	m	124	123	127	126	126	126	m
	Finland	Below upper secondary	100	99	99	99	98	98	97	97	m	97	m
		Tertiary	143	143	145	146	146	146	146	146	m	146	m
	France	Below upper secondary	80	79	79	m	m	81	81	82	81	82	82
		Tertiary	146	145	145	m	m	146	146	145	142	146	147
	Germany	Below upper secondary	87	85	83	72	m	73	81	81	77	83	84
		Tertiary	129	128	123	137	m	137	145	148	151	153	159
	Hungary	Below upper secondary	66	67	68	71	71	71	72	71	72	72	71
		Tertiary	154	159	167	164	164	176	192	190	188	189	185
	Ireland	Below upper secondary	57	59	m	65	m	60	m	68	67	m	m
		Tertiary	156	145	m	163	m	153	m	168	178	m	m
	Italy	Below upper secondary	m	61	m	84	m	78	m	73	m	74	m
		Tertiary	m	115	m	137	m	147	m	138	m	143	m
	Korea	Below upper secondary	m	69	m	m	m	m	75	m	m	m	m
		Tertiary	m	141	m	m	m	m	176	m	m	m	m
	Luxembourg	Below upper secondary	m	m	m	m	m	74	m	m	m	73	m
		Tertiary	m	m	m	m	m	131	m	m	m	134	m
	Netherlands	Below upper secondary	71	m	m	m	m	72	m	m	m	75	m
		Tertiary	143	m	m	m	m	155	m	m	m	159	m
	New Zealand	Below upper secondary	69	74	75	72	72	m	m	m	m	88	82
		Tertiary	143	129	129	136	136	m	129	126	128	123	127
	Norway	Below upper secondary	84	84	83	m	81	81	81	81	81	81	m
		Tertiary	140	136	135	m	135	135	137	136	135	134	m
	Poland	Below upper secondary	m	77	76	m	74	73	m	74	m	76	m
		Tertiary	m	145	148	m	155	159	m	166	m	165	m
	Portugal	Below upper secondary	62	62	63	m	m	m	m	66	66	67	m
		Tertiary	168	171	170	m	m	m	m	173	173	173	m
	Spain	Below upper secondary	64	66	m	m	64	m	m	78	m	m	m
		Tertiary	145	137	m	m	125	m	m	141	m	m	m
	Sweden	Below upper secondary	89	89	88	m	87	87	88	87	86	85	84
		Tertiary	125	125	126	m	129	129	128	127	126	126	127
	Switzerland	Below upper secondary	72	73	72	72	73	74	76	77	76	76	76
		Tertiary	154	150	146	144	148	148	151	153	148	159	156
	Turkey	Below upper secondary	m	m	m	m	m	m	m	46	43	m	m
		Tertiary	m	m	m	m	m	m	m	164	154	m	m
	United Kingdom	Below upper secondary	69	67	68	69	73	69	69	72	71	70	70
		Tertiary	180	176	178	176	187	177	182	180	181	182	181
	United States	Below upper secondary	62	63	61	62	m	63	66	62	63	63	61
		Tertiary	166	163	163	164	m	165	167	166	167	170	167
Partner countries	**Brazil**	Below upper secondary	m	m	m	m	m	m	m	m	m	m	44
		Tertiary	m	m	m	m	m	m	m	m	m	m	270
	Israel	Below upper secondary	m	m	m	m	m	m	m	m	72	67	67
		Tertiary	m	m	m	m	m	m	m	m	157	150	155
	Slovenia	Below upper secondary	m	m	m	m	m	m	m	71	m	72	m
		Tertiary	m	m	m	m	m	m	m	190	m	188	m

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A7.3.

Trends in differences in earnings between females and males (1997-2007)

Average annual earnings of females as a percentage of earnings of males by level of educational attainment of 25-64 year-olds

OECD countries

		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Australia	Below upper secondary	60	m	66	m	62	m	m	m	61	m	m
	Upper secondary and post-secondary non tertiary	62	m	64	m	62	m	m	m	60	m	m
	Tertiary	62	m	67	m	63	m	m	m	65	m	m
Austria	Below upper secondary	m	m	m	m	m	m	m	m	57	58	60
	Upper secondary and post-secondary non tertiary	m	m	m	m	m	m	m	m	60	59	58
	Tertiary	m	m	m	m	m	m	m	m	62	60	62
Belgium	Below upper secondary	m	m	m	64	m	65	66	66	67	m	m
	Upper secondary and post-secondary non tertiary	m	m	m	72	m	72	74	74	75	m	m
	Tertiary	m	m	m	74	m	76	74	74	73	m	m
Canada	Below upper secondary	m	52	51	52	51	50	52	52	53	53	m
	Upper secondary and post-secondary non tertiary	m	59	60	60	59	61	60	59	60	61	m
	Tertiary	m	61	60	58	58	60	61	61	62	62	m
Czech Republic	Below upper secondary	66	66	66	m	m	m	m	74	74	73	75
	Upper secondary and post-secondary non tertiary	69	69	69	m	m	m	m	80	80	80	79
	Tertiary	66	65	65	m	m	m	m	67	68	67	68
Denmark	Below upper secondary	73	73	73	m	74	75	73	74	73	73	m
	Upper secondary and post-secondary non tertiary	72	71	71	m	71	73	71	71	71	71	m
	Tertiary	68	66	66	m	67	68	67	67	67	67	m
Finland	Below upper secondary	78	77	77	76	76	76	76	76	m	77	m
	Upper secondary and post-secondary non tertiary	74	72	72	71	71	72	72	72	m	72	m
	Tertiary	66	65	62	61	63	64	66	65	m	64	m
France	Below upper secondary	68	68	68	m	m	70	68	68	68	68	70
	Upper secondary and post-secondary non tertiary	75	75	75	m	m	77	75	74	75	74	75
	Tertiary	69	69	69	m	m	70	72	70	70	69	70
Germany	Below upper secondary	63	74	70	56	m	53	54	54	52	56	55
	Upper secondary and post-secondary non tertiary	64	67	68	63	m	61	60	60	62	62	59
	Tertiary	63	68	60	61	m	60	58	60	62	58	59
Hungary	Below upper secondary	79	80	84	83	83	85	89	89	88	93	87
	Upper secondary and post-secondary non tertiary	88	86	89	88	88	93	95	96	93	96	91
	Tertiary	64	63	62	62	62	67	71	72	69	70	68
Ireland	Below upper secondary	46	48	m	46	m	48	m	49	44	m	m
	Upper secondary and post-secondary non tertiary	59	63	m	60	m	57	m	61	55	m	m
	Tertiary	70	70	m	71	m	62	m	60	67	m	m
Italy	Below upper secondary	m	70	m	76	m	70	m	67	m	67	m
	Upper secondary and post-secondary non tertiary	m	62	m	65	m	66	m	71	m	66	m
	Tertiary	m	52	m	62	m	60	m	52	m	53	m
Korea	Below upper secondary	m	56	m	m	m	m	48	m	m	m	m
	Upper secondary and post-secondary non tertiary	m	70	m	m	m	m	47	m	m	m	m
	Tertiary	m	75	m	m	m	m	65	m	m	m	m
Luxembourg	Below upper secondary	m	m	m	m	m	80	m	m	m	87	m
	Upper secondary and post-secondary non tertiary	m	m	m	m	m	86	m	m	m	88	m
	Tertiary	m	m	m	m	m	75	m	m	m	75	m
Netherlands	Below upper secondary	46	m	m	m	m	49	m	m	m	48	m
	Upper secondary and post-secondary non tertiary	56	m	m	m	m	58	m	m	m	55	m
	Tertiary	57	m	m	m	m	62	m	m	m	58	m
New Zealand	Below upper secondary	52	61	65	61	61	m	m	m	m	72	69
	Upper secondary and post-secondary non tertiary	62	63	67	64	64	m	64	63	62	63	63
	Tertiary	60	59	61	67	67	m	60	62	61	64	61

Note: Data on earnings for individuals in part-time work are excluded for the Czech Republic, Hungary, Luxembourg, Poland, Portugal and Slovenia while data on part-year earnings are excluded for Hungary, Luxembourg, Portugal and Slovenia.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table A7.3. *(continued)*

Trends in differences in earnings between females and males (1997-2007)

Average annual earnings of females as a percentage of earnings of males by level of educational attainment of 25-64 year-olds

			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
OECD countries	**Norway**	Below upper secondary	60	60	61	m	63	64	66	66	65	65	m
		Upper secondary and post-secondary non tertiary	61	61	62	m	62	63	64	64	63	63	m
		Tertiary	63	62	62	m	63	64	65	65	63	63	m
	Poland	Below upper secondary	m	73	72	m	72	73	m	73	m	71	m
		Upper secondary and post-secondary non tertiary	m	81	81	m	83	84	m	84	m	81	m
		Tertiary	m	68	66	m	69	68	m	68	m	69	m
	Portugal	Below upper secondary	72	71	71	m	m	m	m	73	73	73	m
		Upper secondary and post-secondary non tertiary	69	69	69	m	m	m	m	70	71	71	m
		Tertiary	66	66	65	m	m	m	m	67	67	67	m
	Spain	Below upper secondary	60	61	m	m	58	m	m	63	m	m	m
		Upper secondary and post-secondary non tertiary	72	76	m	m	71	m	m	68	m	m	m
		Tertiary	68	69	m	m	64	m	m	73	m	m	m
	Sweden	Below upper secondary	73	74	74	m	74	74	75	75	74	74	73
		Upper secondary and post-secondary non tertiary	72	72	73	m	71	72	73	73	73	73	72
		Tertiary	67	66	67	m	65	67	68	69	68	68	68
	Switzerland	Below upper secondary	49	51	50	53	51	53	55	55	54	55	57
		Upper secondary and post-secondary non tertiary	54	55	56	58	58	56	56	56	57	56	57
		Tertiary	61	61	61	62	61	60	61	62	60	65	62
	Turkey	Below upper secondary	m	m	m	m	m	m	m	52	47	m	m
		Upper secondary and post-secondary non tertiary	m	m	m	m	m	m	m	75	78	m	m
		Tertiary	m	m	m	m	m	m	m	89	78	m	m
	United Kingdom	Below upper secondary	47	48	49	50	52	53	53	55	55	53	56
		Upper secondary and post-secondary non tertiary	53	54	54	54	52	55	55	54	56	56	55
		Tertiary	65	64	62	63	66	67	66	66	69	56	69
	United States	Below upper secondary	53	60	59	59	m	63	67	63	63	65	64
		Upper secondary and post-secondary non tertiary	59	62	61	60	m	63	64	63	65	65	66
		Tertiary	59	58	59	56	m	58	61	59	59	60	61
Partner countries	**Brazil**	Below upper secondary	m	m	m	m	m	m	m	m	m	m	49
		Upper secondary and post-secondary non tertiary	m	m	m	m	m	m	m	m	m	m	58
		Tertiary	m	m	m	m	m	m	m	m	m	m	55
	Israel	Below upper secondary	m	m	m	m	m	m	m	m	57	56	52
		Upper secondary and post-secondary non tertiary	m	m	m	m	m	m	m	m	59	64	63
		Tertiary	m	m	m	m	m	m	m	m	58	57	59
	Slovenia	Below upper secondary	m	m	m	m	m	m	m	84	m	82	m
		Upper secondary and post-secondary non tertiary	m	m	m	m	m	m	m	88	m	86	m
		Tertiary	m	m	m	m	m	m	m	77	m	77	m

Note: Data on earnings for individuals in part-time work are excluded for the Czech Republic, Hungary, Luxembourg, Poland, Portugal and Slovenia while data on part-year earnings are excluded for Hungary, Luxembourg, Portugal and Slovenia.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
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WHAT ARE THE INCENTIVES TO INVEST IN EDUCATION?

This indicator examines incentives to invest in education by estimating the value of education across 21 OECD countries. The financial returns to education are calculated for investments undertaken as a part of initial education, and account for the main costs and benefits associated with this investment decision. The discounted values of private and public investments in education are given for upper secondary or post-secondary non-tertiary and tertiary education.

Key results

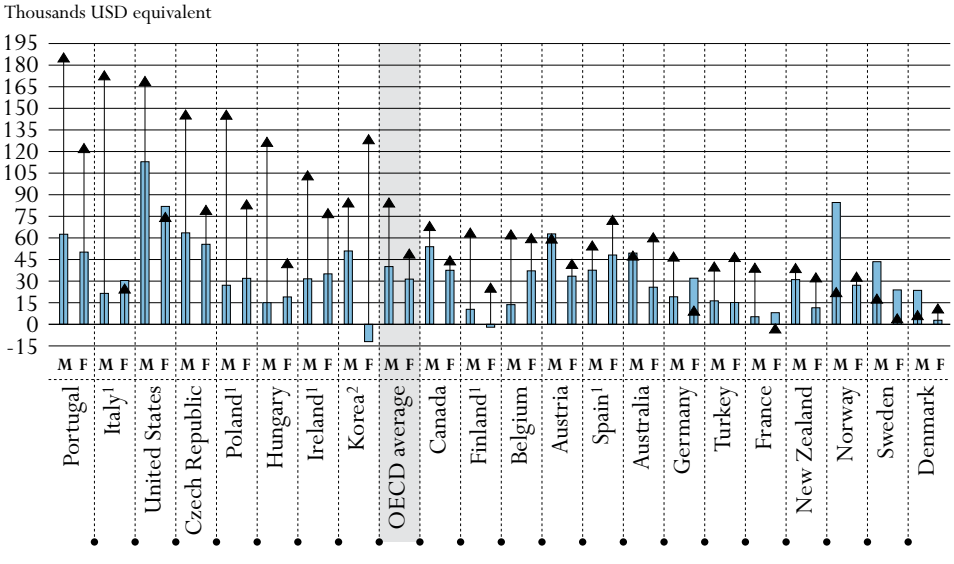
Chart A8.1. Economic returns for an individual obtaining upper secondary or post-secondary non-tertiary education, ISCED 3/4, and for an individual obtaining tertiary education, ISCED 5/6, as part of initial education (2005)

The chart shows the net present value of investments in education discounted at a 5% interest rate.

□ Private net present value of investing in upper secondary or post-secondary non-tertiary education

▲ Private net present value of investing in tertiary education

Investments in tertiary education generate substantial financial rewards in most OECD countries. Male students in Portugal, Italy and the United States investing in tertiary education can expect to gain more than USD 150 000 over their working life. The returns for female tertiary students exceed USD 100 000 in Korea and Portugal. With few exceptions, the returns for investing in a tertiary education are higher than for upper secondary or post-secondary non- tertiary education. On average across OECD countries, tertiary education generates a net present value approximately twice that of upper secondary or post-secondary non tertiary education. For males the returns are USD 82 000 compared with USD 40 000, and for females USD 52 000 USD compared with USD 28 000. Incentives to continue education at the tertiary level are thus strong for males and females in most countries.



M: Male; **F**: Female

1. Year of reference 2004.

2. Year of reference 2003.

Countries are ranked by descending order of the net present value for males immediately acquiring a tertiary level of education. Cash flows are discounted by 5% interest rate.

Source: OECD. Table A8.1 and Table A8.2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Other highlights of this indicator

- Both public and private returns are typically higher for tertiary education than upper secondary education or post-secondary non-tertiary education, reflecting the fact that an upper secondary level education has become the norm among OECD countries. However, the value of an upper secondary education or post-secondary non-tertiary education is still substantial in Norway for males and in the United States for both males and females where the net discounted gain exceeds USD 80 000.

- At the upper secondary level of education, the social safety net in some countries works against females investing in further education. Social transfers remove some of the income differences between those who have obtained an upper secondary education and those who have not. The negative effects of social transfers are particularly strong in Denmark and New Zealand where the returns for females are reduced by 25 000 USD or more.

- Tertiary education brings substantial rewards in most countries and the present value of the gross earnings premium for males exceeds USD 300 000 in Italy and the United States over the working life. The rewards for investing in tertiary education are typically lower for females, except in Australia, Denmark, Korea, Norway, Spain and Turkey where the returns on the overall investment are higher for females than for males.

- On average across OECD countries, the value invested in tertiary education for an individual male is USD 67 000, taking into account public and private spending, as well as indirect costs in the form of private and public foregone earnings and taxes. In Austria, Germany and the United States these investment costs exceed USD 100 000.

- The net public return from an investment in tertiary education for a male student exceeds, on average across OECD countries, USD 50 000. This is almost twice the amount of the investment made by the public side, and as such, provides a strong incentive to expand higher education in most countries through either public or private financing.

Policy context

Economic returns to education are a key driver for individuals' decisions to invest time and money in education beyond compulsory schooling. The monetary benefits of completing higher levels of education motivate individuals to postpone consumption today for future rewards. From a policy perspective, awareness of economic incentives is crucial to understanding the flow of individuals through the education system.

A problem facing policy makers is the fact that changes in education policies generally take some time to have an impact on the labour market. Large shifts in the demand for education can drive earnings and returns up considerably before the supply catches up. This provides a strong signal both to individuals and to the education system about the need for additional investment.

Apart from the earnings differentials, which are largely determined by the labour market, major components of the returns to education are directly linked to policy: access to education, taxes and the costs of education for the individual. Very high private returns suggest that education may need to be expanded by increasing access and by making loans more readily available to individuals, rather than by lowering the costs of education. On the other hand, low returns indicate that there are not enough incentives for the individual to invest in education, either because education is not rewarded in the labour market, or because costs, in terms of tuition fees, foregone earnings and taxation, are relatively high.

Economic benefits of education flow not only to the individual but also to society through lower social transfers and through the additional taxes individuals pay when they enter the labour market. The public returns to education, which take into account the costs and benefits of education for governments, provide additional information on the overall returns to education. In shaping policies, it is important to consider the balance between private and public returns. This indicator takes a closer look at individual and public incentives to invest in education, as well as incentives for males and females at different educational levels.

Evidence and explanations

Financial returns to investment in education

The relationship between education and earnings can be evaluated in an investment analysis framework. An individual incurs costs when investing in education (direct costs such as tuition fees and indirect costs such as foregone earnings while in school). The overall benefits of this investment can be assessed by estimating the economic value of the investment, which essentially measures the degree to which the costs of attaining higher levels of education translates into higher levels of earnings.

The approach used here is the Net Present Value (NPV) of the total investment, or the Present Value (PV) when referring to different components or cash flow streams. In this framework, costs and benefits in different periods are transferred back in time to the start of the investment. This is done by discounting all cash flows back to the beginning of the investment with a required rate of interest (discount rate). The choice of interest rate is generally a difficult issue as it should reflect not only the overall time horizon of the investment, but also the cost of borrowing, or the perceived risk of the investment. To keep things simple, and to make the interpretation of results easier, the same discount rate is applied across all OECD countries.

The discount rate used here is set to 5%, which largely reflects the interest one can expect, under normal circumstances, to obtain by investing in long-term government bonds in most OECD countries. Discounting the cost and benefits to the present value with this interest rate makes the financial returns on the overall investment and values of the different components comparable across time and countries.

A positive net present value of an educational investment represents the additional value one can expect to gain over an investment in government bonds. A negative net present value suggests that one would be better off investing in bonds rather than enrolling in education. However, many governments have schemes which provide grants and loans to students with interest rates below those used in this exercise. These subsidies can, in many cases, turn the investment and value for the individual positive even if negative returns are sometimes documented in this indicator.

Net present value (NPV) calculations are based on the same method as internal rate of return (IRR) calculations used in previous editions of *Education at a Glance*; the main difference between these two methods is in how the interest rate is set. For calculations developed within the IRR framework, the interest rate is raised to the level at which the economic benefits equal the cost of the investment; for calculations developed with the NPV approach, the discount rate is fixed at the start of the analysis and the economic benefits and costs are then valued in line with the chosen interest rate. The net present value has a couple of advantages over IRR in that it is easier to communicate and better suited for long-term investments. IRR typically favours short-term investments with large cash flows close in time with the investment, and thus ranks investments differently from those evaluated by NPV. The net present value is thus more suited for educational investments that typically span several decades.

This indicator is analysed from two points of view: financial returns to the individual, which reflect only the individual's earnings and costs, and financial returns to government (public net present value). The returns to government include the collection of higher income taxes and social contributions, lower social transfers to individuals, as well as the costs borne by the government for educating the individual. These private and public returns are calculated for 21 OECD countries.

Incentives for the individual to invest in education

Upper secondary education or post-secondary non-tertiary education

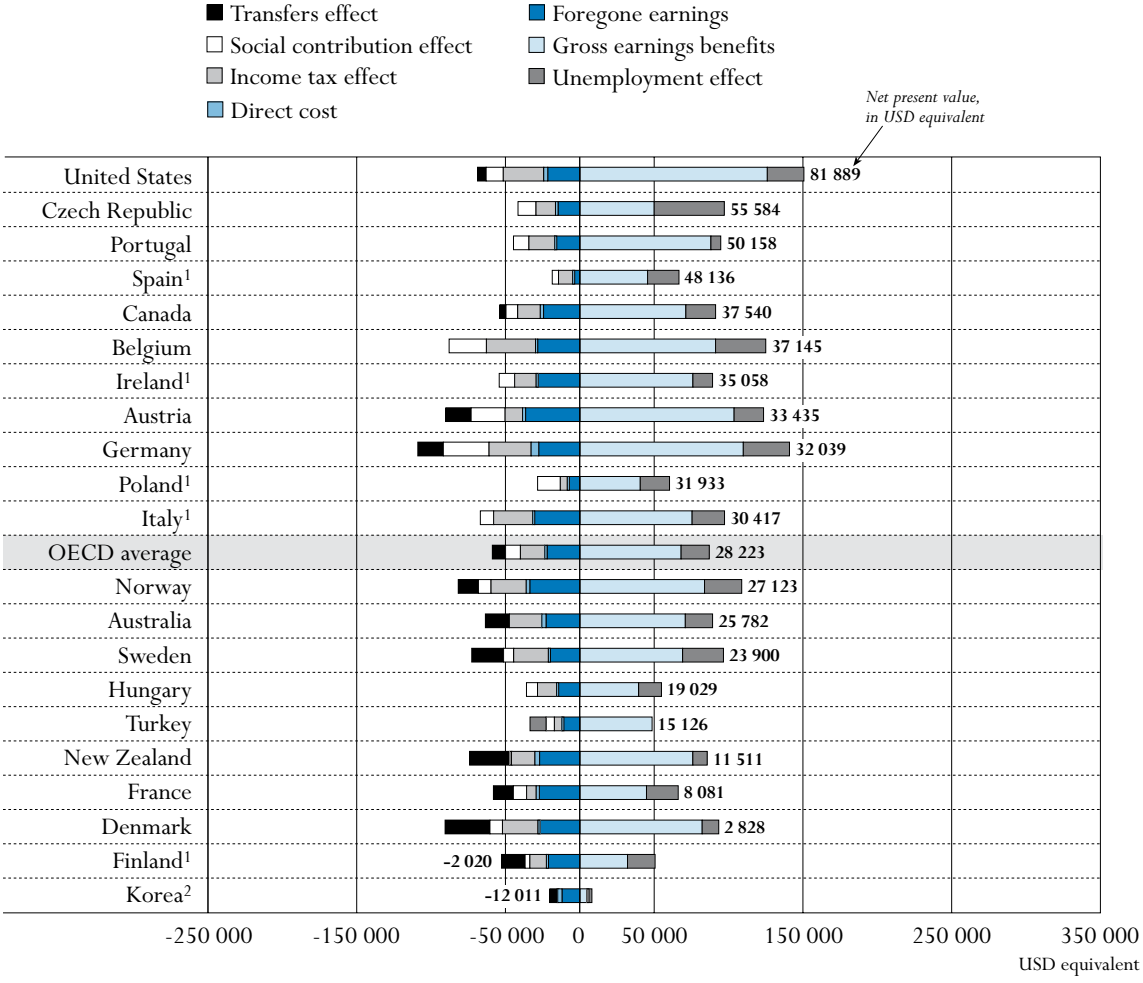
The different costs and benefits make up the components of the value of education, and as such, describe the key drivers of the returns in different countries. In order to visualize the main factors influencing the returns to education, each cost and benefit is discounted back in time with a discount rate of 5%. Table A8.1 shows the value of each component and the net present value of the overall investment for an individual attaining upper secondary education or post-secondary non-tertiary education.

Chart A8.2 shows these components for a female investing in an upper secondary education or post-secondary non-tertiary education. At this level of education the direct cost for education are typically negligible (with the exception of Germany where the direct costs exceeds USD 5 000) and the main investment cost consists of foregone earnings. Depending on salary levels and the possibility of finding a job, foregone earnings vary substantially between countries. In Spain and

Poland the earnings foregone are less than USD 10 000, while in Austria foregone earnings exceed USD 35 000. Good labour market prospects for young individuals without an upper secondary education thus have the consequence of reducing the incentives to invest in further education.

Gross earnings effects and unemployment effects make up the benefit side. In Austria, Germany and the United States the discounted gross earnings effect exceeds USD 100 000 over the working life of a female attaining an upper secondary education or post-secondary non-tertiary education. Unemployment effects play an important role in Belgium, the Czech Republic and Germany where the better employment prospects over working life are valued at USD 30 000 or more.

Chart A8.2. Components of the private net present value for a female obtaining upper secondary or post-secondary non-tertiary education, ISCED 3/4 (2005)



1. Year of reference 2004.
2. Year of reference 2003.
Cash flows (components) are discounted by 5% interest rate.
Countries are ranked by descending order of the net present value.
Source: OECD. Table A8.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664146203473

Income taxes, social contributions, and transfer effects bring down the benefit side, and on average across countries, a female investing in upper secondary education or post-secondary non-tertiary education can expect to gain approximately USD 28 000 over her working life. However, this varies significantly between countries; in the United States attaining this level of education generates over USD 80 000 whereas in Finland and Korea the expected value is negative when discounting the cash flow streams at 5%.

Males generally have better financial returns on their upper secondary education or post-secondary non-tertiary education than females. The impact of the different components making up the investment is typically stronger, except for transfer effects where the safety net of countries works against females investing in further education. Social transfer removes some of the income differences between those who have obtained an upper secondary education and those who have not. Social transfers make the economic incentives for investing in further education particularly low in Denmark and New Zealand where the female returns are reduced by USD 25 000 or more. Strong social safety nets can in some countries thus have the consequence of lowering the incentives to invest in further education.

Tertiary education

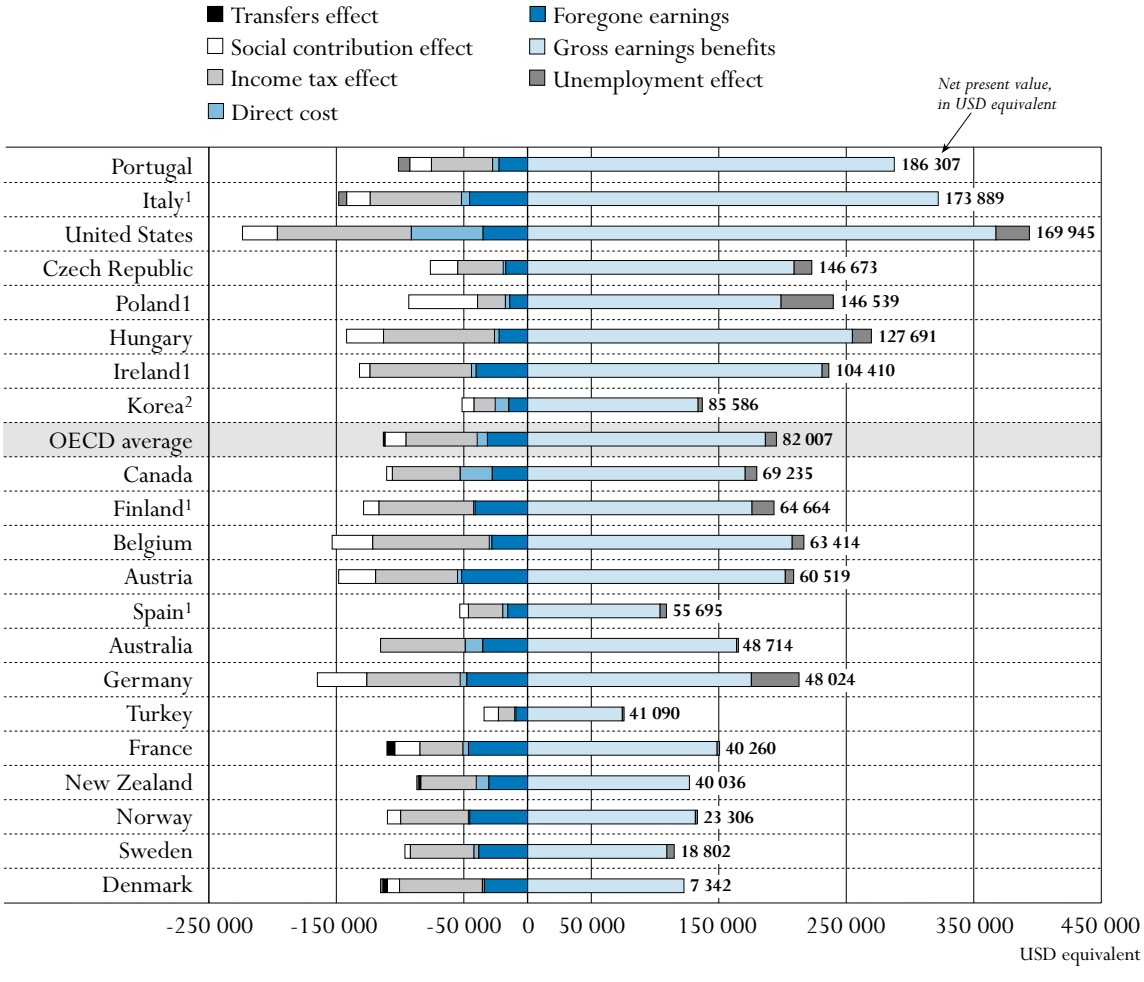
Chart A8.3 shows the components of the returns to tertiary education for males in different countries. Relative to upper secondary and post-secondary non-tertiary education, the impact of unemployment benefits is less pronounced than the earnings differential, and taxes and direct costs of education play a substantially larger role.

As with upper secondary and post-secondary non-tertiary education, the returns to tertiary education are largely driven by earnings premiums; other components are less important in explaining differences among OECD countries. This suggests that education policy needs to monitor and match the supply of and demand for education. The components illustrated in Chart A8.3 show, however, the importance of specific factors in different countries and thus indicate areas in which policy could help to improve incentives.

Tertiary education brings substantial rewards in the Czech Republic, Hungary, Ireland, Italy, Poland, Portugal and the United States where an investment generates over USD 100 000 indicating strong incentives to continue education. The present value of the gross earnings premium exceeds USD 300 000 in Italy and the United States. The rewards for tertiary education are substantially lower in Denmark, France, New Zealand, Norway and Sweden where returns are USD 40 000 or below. The rewards for investing in tertiary education are typically lower for females, except in Australia, Denmark, Korea, Norway, Spain and Turkey where the returns are higher for females than for males (Table A8.2).

There is some trade-off between taxes and the direct costs of education (tuition fees). Countries with low or no tuition fees typically let individuals pay back public subsidies later in life through progressive tax schemes. In countries in which a larger portion of the investment falls on the individual (in the form of tuition fees) a larger portion of the earnings differential is also accrued by the individual. In general there is a positive link, although weak, between the private direct costs for education and the overall value of the education (net present value of the investment).

Chart A8.3. Components of the private net present value for a male obtaining tertiary education, ISCED 5/6 (2005)



1. Year of reference 2004.
2. Year of reference 2003.
Cash flows (components) are discounted by 5% interest rate.
Countries are ranked by descending order of the net present value.
Source: OECD. Table A8.2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664146203473

Public rate of return to investments in education

Public returns are one way of examining the effect on public-sector accounts of individuals' decisions to invest in education and the effect of policies that affect these investments. Similarly, to warrant an intervention by governments to improve private rates of return to education, it is important to consider public returns in order to have a complete picture of overall returns to education.

For the public sector, the costs of education include direct expenditures on education (such as direct payments of teachers' salaries or for the construction of school buildings, purchase of textbooks, etc.) and public-private transfers (such as public subsidies to households for

scholarships and other grants and to other private entities for provision of training at the workplace, etc.). The public costs of education also include lost income tax revenues on students' foregone earnings. The benefits include increased revenue from income taxes on higher wages and social insurance payments as well as lower social transfers due to the higher income.

In practice, raising levels of education will give rise to a complex set of fiscal effects on the benefit side, beyond the effects of revenue growth based on wages and payments to government.

Box A8.1. Estimating returns to education

There are essentially two main approaches to estimating the financial returns to education, founded either on investment theory, from the finance literature, or on an econometric specification, from the labour economics literature.

The basis for an investment approach is the discount rate (the time-value of money), which makes it possible to compare costs or payments (cash flows) over time. The discount rate can be estimated either by raising it to the level at which financial benefits equal costs, which is then the internal rate of return, or by setting the discount rate at a required rate that takes into consideration the risk involved in the investment, which is then a net present value calculation with the gains expressed in monetary units.

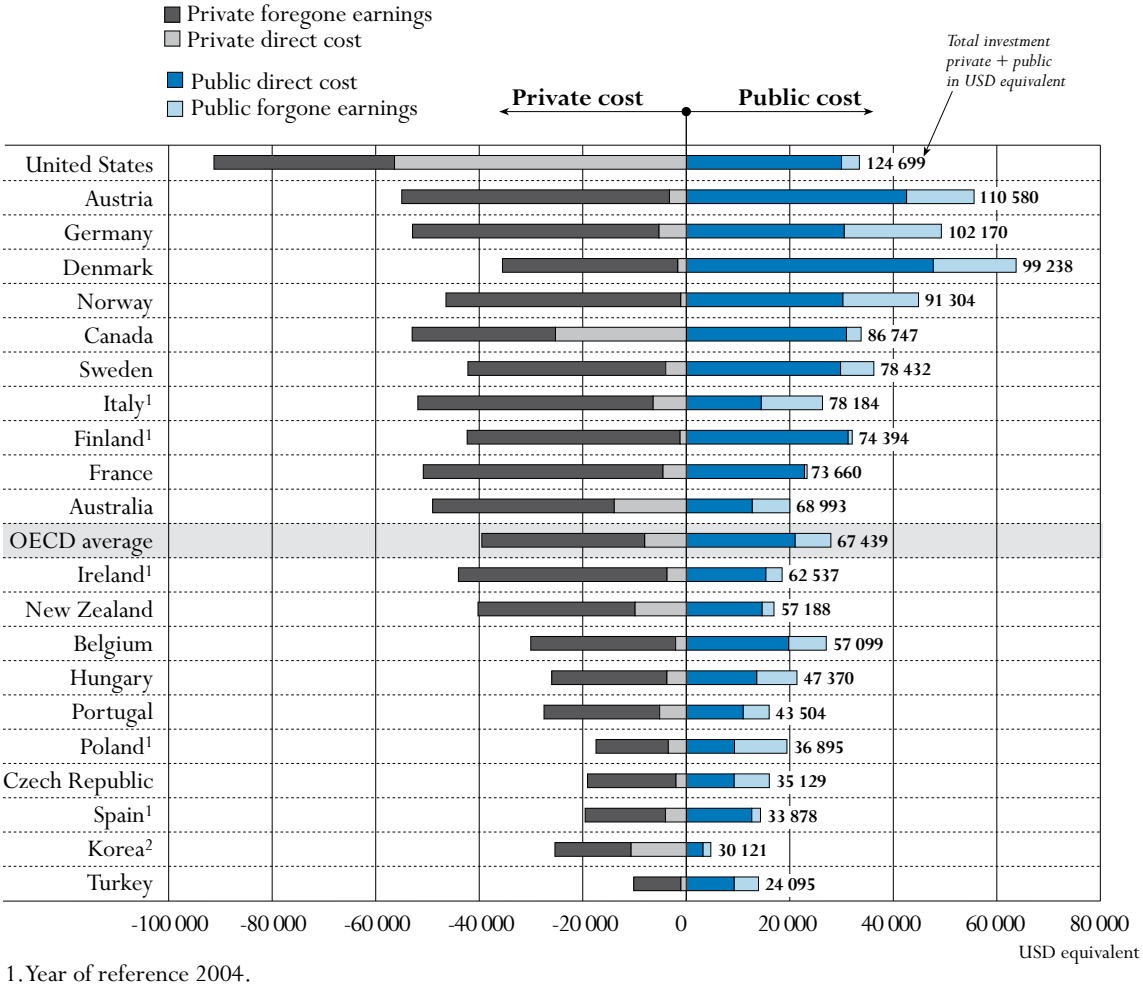
The econometric approach taken in labour economics originates from Mincer (1974) in which returns to education are estimated in a regression relating earnings to years of education, labour market experience and tenure. This basic model has been extended in subsequent work to include educational levels, employment effects and additional control variables such as gender, work characteristics (part-time, firm size, contracting arrangements, utilisation of skills, etc.) to arrive at a "net" effect of education on earnings.

The main difference between the two approaches is that the investment approach is forward-looking (although historical data are typically used) whereas an econometric approach tries to establish the actual contribution of education to earnings by controlling for other factors that can influence earnings and returns. This difference has implications for the assumptions and for interpretations of returns to education. As the investment approach focuses on the incentives at the time of the investment decision, it is prudent not to remove the effect of (controlling for) other factors as these are part of the returns that an individual can expect to receive when deciding to invest in education. In other words, it is difficult to foresee what one's labour market experience or tenure with a specific firm will be, whether one will work part-time, for a big firm, in the public sector, or in a job that does not draw upon one's skills. Gender is, of course, known at the time of the investment decision, and is an important component in investment analysis.

Depending on the impact of the control variables, how steep the earnings curves are, and how cash flows are distributed over time, the results of the two approaches can diverge quite substantially. Depending on other underlying assumptions, returns may differ between and within a class of models as well. For instance, cash flows can be calculated differently and, depending on the method chosen, returns will vary to some degree. It is therefore generally not advisable to compare rates of return from different studies. The use of data systematically extracted from comparable sources allows a reliable cross country comparison, even though the rates of return might differ slightly with another approach.

For instance, better educated individuals generally have better health, which lowers public expenditure on provision of health care and thus public expenditure. As earnings generally increase with educational attainment, those with higher levels of education consume more goods and services, and this leads to fiscal effects beyond income tax and social security contributions. However, tax and expenditure data on these indirect effects of education are not readily available for inclusion in rate-of-return calculations.

Chart A8.4. Public versus private investment for a male obtaining tertiary education (2005)



1. Year of reference 2004.
2. Year of reference 2003.
Cash flows (components) are discounted by 5% interest rate.
Countries are ranked by descending order of the total cost private + public.
Source: OECD. Table A8.2 and Table A8.4. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664146203473

Table A8.3 and Table A8.4 show the public returns for individuals who obtain upper secondary or post-secondary non-tertiary education and tertiary education as part of initial education, respectively. Chart A8.4 shows the public and private costs for males investing in a tertiary education. On average across OECD countries, the value invested in a male obtaining a tertiary education is USD 67 000, taking into account public and private spending, as well as indirect

costs in the form of public and private foregone earnings and taxes. In Austria, Germany and the United States the present value of the investment costs exceeds USD 100 000.

Direct costs for education are generally borne by the public side with the exceptions of Australia, Canada, Korea and the United States, where tuition fees constitute a significant share of the overall private investment costs for tertiary education. Together with foregone public earnings in the form of taxes and social contributions, direct and indirect public investment costs exceeds USD 40 000 in Austria, Denmark, Germany and Norway for a male with tertiary education. In Korea, Spain and Turkey the total public investment cost does not exceed USD 15 000. On average among OECD countries, the total present value of public investment for a male obtaining a tertiary qualification is USD 28 000.

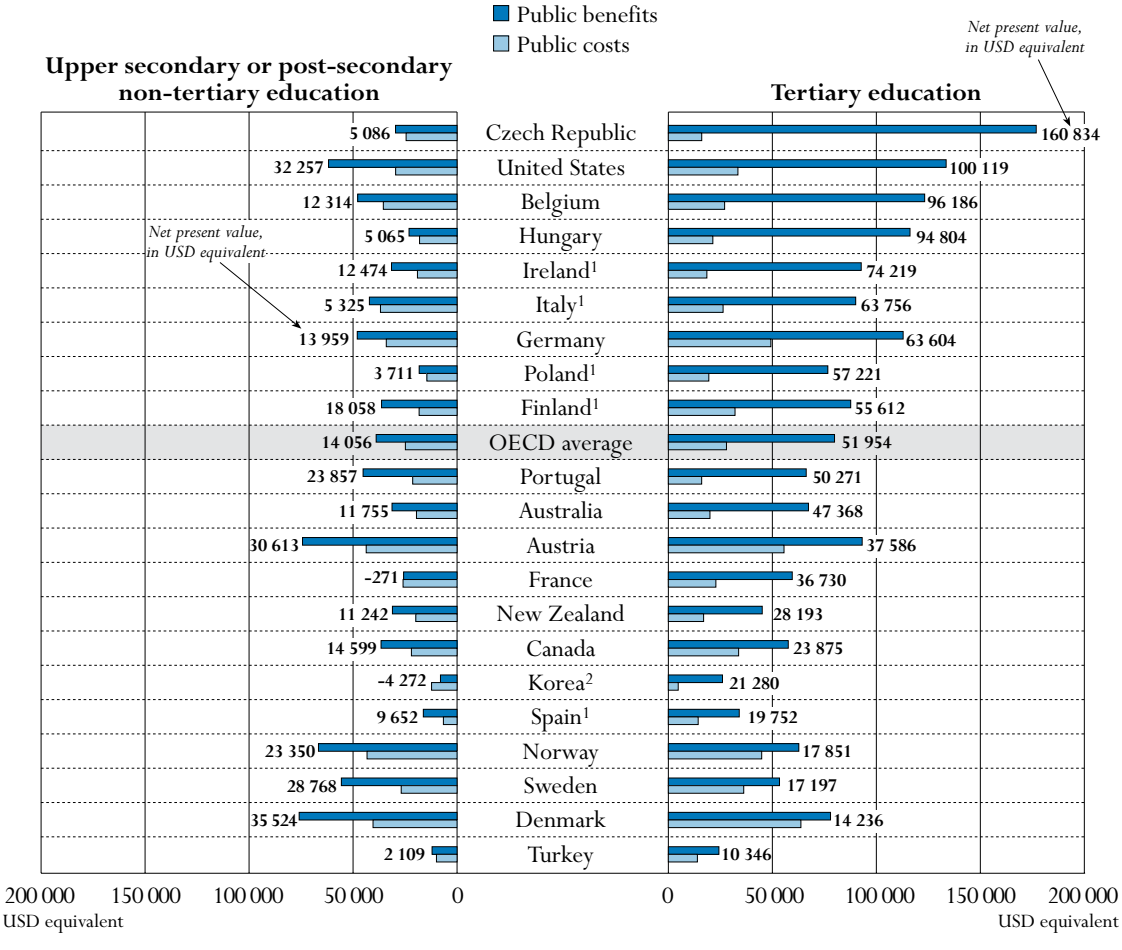
Although public investments in tertiary education are large in many countries, private investment costs exceed those of governments in most countries. In Austria, Canada, France, Germany, Italy and the United States an individual invests over USD 50 000 to acquire a tertiary qualification, taking into account direct and indirect costs. In the United States this figure is above USD 90 000 with direct costs such as tuition fees making up a significant part of the investment. In all other countries, foregone earnings are the main component. The decision to continue education at a tertiary level is thus challenging, as much is at stake, particularly for young individuals from less affluent backgrounds.

For an individual, foregone earnings make up a substantial part of overall investment costs and particularly in countries with long tertiary educations such as in Austria and Germany (see Indicator B1). Earnings foregone also depend on the wage levels one can expect to receive and most notably the probability to find a job. As the labour market for young adults is likely to deteriorate in the coming years (Indicator C3), investment costs will fall and thereby also increase the returns for tertiary education. The incentives to invest in education both from the private and public perspective will thus be further advanced across most OECD countries.

Investments in education also generate public returns in the form of income taxes, increased social insurance payments and lower social transfers as a consequence of higher income levels. Chart A8.5 compares the costs and economic benefits for a male investing in upper secondary or post-secondary non-tertiary education and tertiary education from a public point of view. The public returns for investments in upper secondary or post-secondary non-tertiary education are positive in all countries except in France and Korea, where the net present value is marginally negative. On average across OECD countries, upper secondary or post-secondary non-tertiary education generates a net return of USD 14 000 USD and in Austria, Denmark, Sweden and the United States this figure is close to or above USD 30 000.The public returns for a female investing in upper secondary or post-secondary non-tertiary education are marginally lower, USD 10 000 on average across OECD countries (Table A8.3).

The public returns to tertiary education are substantially higher than for upper secondary or post-secondary non-tertiary education, in part because a larger share of the investment costs are borne by the individuals themselves. The main factors are, however, higher taxes and social contributions, and lower social transfers that flow from the higher income levels of those with tertiary qualifications. In Belgium, the Czech Republic, Germany, Hungary and the United States these benefits exceeds USD 100 000 over an individual's working life (Chart A8.5).

Chart A8.5. Public cost and benefits for a male obtaining upper secondary or post-secondary non-tertiary education and tertiary education (2005)



1. Year of reference 2004.
2. Year of reference 2003.
Cash flows (components) are discounted by 5% interest rate.
Countries are ranked by descending order of the public net present value obtaining tertiary education.
Source: OECD. Table A8.3 and Table A8.4. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664146203473

On average across countries, the net public return from an investment in tertiary education exceeds USD 50 000 for a male student, accounting for the main costs and benefits at this level of education. This is almost twice the amount of public investments made in tertiary education across OECD countries, and as such, provides a strong incentive for governments to expand higher education.

In conclusion, there seems to be room for additional expansion of higher education in most countries through either public or private financing. As shown in this indicator, at a discount rate of 5%, most educational investments yield substantial private and public returns in most countries. Financing these investments at 5% thus makes sense both from a public and private perspective. Public investments in education and particularly at tertiary level would be rational

even in the face of running a deficit in public finances. As indicated here, issuing government bonds to finance these investments will yield significant returns and improve public finances in the longer term. Public as well as private returns to tertiary education will eventually drop in many countries with high returns as supply meet demand, but from the viewpoint of equity this may be a desirable outcome.

Definitions and methodologies

In the calculation of the private Net Present Value (NPV), private investment costs include after tax foregone earnings adjusted for the probability of finding a job (unemployment rate) and direct private expenditures on education. Both of these investment streams take into account the duration of studies. On the benefit side, the age-earning profiles are used in calculating the earnings differential between different educational groups (below upper secondary education; upper secondary or post-secondary non-tertiary education; and tertiary education). These gross earnings differentials are adjusted for differences in income taxes and social contributions as well as social transfers (transfers including housing benefits and social assistance related to earnings level) to arrive at net earnings differentials. The cash flows are further adjusted for probability of finding a job (unemployment rates). These calculations are done separately for male and females to account for differences in earnings differentials and unemployment rates.

In the calculation of public NPV, public costs include lost tax receipts during the schooling years (income tax and social contribution), and public expenditures (taking into account duration of studies). The benefits for the public sector are additional tax and social contribution receipts associated with higher earnings and savings from transfers, *i.e.* housing benefits and social assistance that the public sector doesn't have to pay above a certain level of earnings.

It is important to consider some of the broad conceptual limitations on the estimates of financial returns performed here:

- The data reported are accounting based values only. The results no doubt differ from econometric estimates that would rely, for example, on an earnings function approach, rather than on a lifetime stream of earnings derived from average earnings. Estimates relate to levels of formal educational attainment only. They do not reflect the effects of learning outside of formal education.

- The approach used here estimates future earnings for individuals with different levels of educational attainment, based on knowledge of how average present gross earnings vary by level of attainment and age. However, the relationship between different levels of educational attainment and earnings may differ in the future from what it is today. Technological, economic and social changes may all alter how wage levels relate to levels of educational attainment.

- Differences in returns across countries partly reflect different institutional and non-market conditions that bear on earnings, such as institutional conditions that limit flexibility in relative earnings. In estimating benefits, the effect of education on increasing the likelihood of employment when wanting to work is taken into account. However, this also makes the estimate sensitive to the stage in the economic cycle at which the data were collected. As higher educated individuals typically have a stronger attachment to the labour market, the value of education generally increases in time of poor economic growth.

The calculations also involve a number of restrictive assumptions needed for international comparability. For calculations of the investments in education, foregone earnings have been standardised at the level of the legal minimum wage or the equivalent in countries where the earnings data include part-time work (when no national minimum wage was available, the wage was selected from wages set in collective agreements). This assumption seeks to counterbalance the very low recorded earnings for 15-24 year-olds that led to excessively high estimates in earlier editions of *Education at a Glance*. In the Czech Republic, Hungary, Poland and Portugal actual earnings are used in the calculations of foregone earnings as part-time work is excluded in these earnings data collections.

To ensure comparability, calculations of taxes, social contributions and social transfers are based on the assumption that the individual in question is single and childless. This restriction is largely necessary because the rules governing eligibility for a broad range of social entitlements vary greatly by marital or civil status (and sometimes other criteria). In order to broaden the country coverage, when information from Table B1.3a and Table B1.3b were not available, the starting age of education and the duration of studies have been estimated on the basis of school expectancy (see Indicator C1) or the best estimate from the literature.

The analysis could be extended in a number of ways, subject to data availability. In particular, more differentiated and comparable data relative to costs per student and the availability of student loans and interest charges on these loans would be useful. Estimates of changes in value added tax receipts resulting from the increased earnings acquired through obtaining higher levels of education would also contribute to a more complete assessment of the impact on public accounts. The calculations do not consider the fact that those with high earnings often generate higher levels of income after age 64, owing to their superior pension arrangements.

For the methods employed for the calculation of the rates of return, please see Annex 3 at *www.oecd.org/edu/eag2009*.

Further references

Mincer, J. (1974), "Schooling, experience, and earnings", National Bureau of Economic Research (NBER), New York.

Table A8.1.

Private net present value for an individual obtaining upper secondary or post-secondary non-tertiary education as part of initial education, ISCED 3/4 (2005)

	Direct cost		Foregone earnings		Gross earnings benefits		Income tax effect		Social contribution effect		Transfers effect		Unemployment effect		Net present value	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Australia	-2 810	-2 810	-22 021	-22 719	73 492	70 932	-29 991	-21 803	0	0	-1 282	-16 141	32 094	18 324	**49 482**	**25 782**
Austria	-2 032	-2 032	-38 001	-36 463	146 283	103 739	-35 039	-11 710	-31 945	-22 855	-7 317	-17 035	30 856	19 791	**62 805**	**33 435**
Belgium	-1 441	-1 441	-32 999	-28 338	63 700	91 261	-30 534	-33 010	-17 237	-25 074	0	0	32 171	33 748	**13 659**	**37 145**
Canada	-2 161	-2 161	-23 450	-24 386	91 065	71 299	-27 634	-15 208	-7 546	-7 870	-1 368	-4 123	25 011	19 989	**53 918**	**37 540**
Czech Republic	-1 722	-1 722	-15 426	-14 635	44 843	50 019	-15 791	-13 086	-13 795	-12 108	0	0	65 414	47 116	**63 524**	**55 584**
Denmark	-578	-578	-27 078	-27 534	111 279	82 278	-43 456	-23 892	-11 003	-8 422	-21 465	-30 149	15 888	11 126	**23 587**	**2 828**
Finland[1]	-138	-138	-22 955	-22 309	50 777	32 073	-19 850	-11 118	-4 436	-3 206	-12 018	-15 866	19 051	18 542	**10 432**	**-2 020**
France	-2 119	-2 119	-30 492	-27 181	41 450	44 826	-9 575	-6 471	-8 688	-8 892	-7 433	-13 413	22 141	21 332	**5 284**	**8 081**
Germany	-5 085	-5 085	-27 421	-27 631	51 356	109 920	-21 356	-28 291	-20 773	-30 735	-5 861	-17 182	48 275	31 043	**19 134**	**32 039**
Hungary	-577	-577	-15 805	-15 024	38 406	39 545	-15 715	-12 844	-7 380	-7 415	0	0	16 116	15 343	**15 046**	**19 029**
Ireland[1]	-599	-599	-29 199	-28 740	66 937	76 038	-25 960	-14 476	-5 552	-10 369	0	0	25 992	13 203	**31 618**	**35 058**
Italy[1]	-1 114	-1 114	-35 954	-30 570	89 302	75 509	-32 910	-26 257	-9 243	-8 934	0	0	11 406	21 783	**21 487**	**30 417**
Korea[2]	-2 865	-2 865	-11 898	-11 980	68 412	4 787	-2 892	555	-5 088	-515	0	-4 777	5 282	2 783	**50 950**	**-12 011**
New Zealand	-3 113	-3 113	-28 129	-27 056	83 873	75 997	-26 409	-15 778	-1 130	-1 026	-3 537	-27 132	9 496	9 620	**31 051**	**11 511**
Norway	-2 372	-2 372	-33 342	-33 625	133 548	83 842	-46 232	-23 682	-14 535	-8 476	-5 868	-13 572	53 406	25 008	**84 606**	**27 123**
Poland[1]	-194	-194	-9 622	-8 202	31 601	40 648	-4 240	-4 697	-13 975	-15 287	0	0	23 567	19 665	**27 137**	**31 933**
Portugal	-11	-11	-20 562	-16 867	123 842	88 143	-31 103	-17 324	-14 081	-10 389	0	0	4 485	6 606	**62 570**	**50 158**
Spain[1]	-481	-481	-5 925	-4 348	52 086	45 557	-12 389	-9 490	-3 833	-4 210	0	0	8 146	21 107	**37 604**	**48 136**
Sweden	-19	-19	-19 592	-21 107	93 464	69 113	-30 240	-23 335	-8 283	-6 800	-17 103	-21 409	25 278	27 458	**43 505**	**23 900**
Turkey	-324	-324	-10 837	-11 750	37 719	48 598	-6 185	-5 005	-5 950	-5 624	0	0	1 886	-10 770	**16 308**	**15 126**
United States	-2 689	-2 689	-21 168	-21 572	180 543	126 069	-42 737	-27 179	-15 178	-11 526	-3 874	-5 803	18 033	24 588	**112 929**	**81 889**
Countries average	***-1 545***	***-1 545***	***-22 946***	***-22 002***	***79 713***	***68 104***	***-24 297***	***-16 386***	***-10 460***	***-9 987***	***-4 149***	***-8 886***	***23 524***	***18 924***	***39 840***	***28 223***

Note: Cash flows (components) are discounted by 5% interest rate.
Assuming that foregone earnings for all individual refer to the minimum wage, except those countries reporting full time earnings: the Czech Republic, Hungary, Poland and Portugal.
1. Year of reference 2004.
2. Year of reference 2003.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
StatLink http://dx.doi.org/10.1787/664146203473

A8

Table A8.2.

Private net present value for an individual obtaining tertiary education as part of initial education, ISCED 5/6 (2005)

	Direct cost		Foregone earnings		Gross earnings benefits		Income tax effect		Social contribution effect		Transfers effect		Unemployment effect		Net present value	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Australia	-13 901	-13 901	-35 094	-35 046	163 861	148 634	-66 312	-49 491	-	-	0	0	159	11 177	**48 714**	**61 374**
Austria	-3 249	-3 249	-51 723	-52 581	201 993	173 711	-64 185	-48 959	-29 009	-32 560	0	0	6 692	6 554	**60 519**	**42 915**
Belgium	-2 054	-2 054	-27 996	-26 929	207 374	172 292	-91 380	-68 762	-31 855	-40 146	0	0	9 325	26 390	**63 414**	**60 792**
Canada	-25 266	-25 266	-27 697	-29 045	170 510	137 899	-53 072	-34 480	-4 496	-12 012	0	0	9 256	8 267	**69 235**	**45 365**
Czech Republic	-1 979	-1 979	-17 106	-15 333	208 896	121 571	-35 660	-25 627	-21 519	-17 640	0	0	14 043	19 426	**146 673**	**80 418**
Denmark	-1 626	-1 626	-33 883	-33 186	122 635	84 122	-64 918	-31 670	-9 562	-7 298	-3 485	-2 059	-1 819	3 700	**7 342**	**11 983**
Finland[1]	-1 187	-1 187	-41 149	-42 711	175 858	110 290	-74 179	-40 040	-12 108	-7 728	0	-5 327	17 428	13 095	**64 664**	**26 392**
France	-4 488	-4 488	-46 325	-43 953	148 491	99 338	-33 569	-21 435	-19 792	-14 998	-6 155	-27 301	2 097	10 928	**40 260**	**-1 908**
Germany	-5 256	-5 256	-47 631	-50 100	175 411	110 150	-73 155	-36 203	-38 857	-26 756	0	0	37 512	18 616	**48 024**	**10 450**
Hungary	-3 734	-3 734	-22 248	-20 924	254 678	139 576	-87 002	-64 061	-28 976	-20 605	0	0	14 972	13 180	**127 691**	**43 432**
Ireland[1]	-3 708	-3 708	-40 309	-40 226	230 823	178 118	-79 558	-47 702	-8 278	-12 219	0	0	5 441	3 896	**104 410**	**78 158**
Italy[1]	-6 385	-6 385	-45 482	-42 922	322 079	136 591	-71 534	-46 797	-18 529	-12 391	0	0	-6 260	-2 290	**173 889**	**25 806**
Korea[2]	-10 651	-10 651	-14 726	-15 135	133 568	172 827	-16 574	-6 372	-9 451	-12 071	0	0	3 420	917	**85 586**	**129 516**
New Zealand	-9 877	-9 877	-30 361	-30 106	126 923	102 431	-43 436	-23 223	-1 500	-1 248	-160	-6 059	-1 553	1 654	**40 036**	**33 571**
Norway	-1 044	-1 044	-45 383	-45 330	131 511	118 313	-53 094	-33 806	-10 404	-9 714	0	0	1 721	5 613	**23 306**	**34 032**
Poland[1]	-3 459	-3 459	-13 980	-10 974	198 632	112 422	-21 810	-12 976	-53 933	-38 026	0	0	41 089	37 279	**146 539**	**84 266**
Portugal	-5 145	-5 145	-22 341	-17 563	287 624	219 720	-47 917	-57 449	-17 015	-23 085	0	0	-8 900	6 878	**186 307**	**123 357**
Spain[1]	-4 016	-4 016	-15 522	-14 145	103 748	108 691	-26 848	-26 843	-6 805	-8 051	0	0	5 139	17 859	**55 695**	**73 495**
Sweden	-3 969	-3 969	-38 222	-38 463	109 112	66 853	-49 721	-20 212	-4 297	-5 104	0	0	5 899	5 993	**18 802**	**5 097**
Turkey	-1 024	-1 024	-9 112	-7 930	74 185	72 423	-12 727	-13 409	-11 259	-12 398	0	0	1 026	10 033	**41 090**	**47 695**
United States	-56 365	-56 365	-34 886	-36 137	367 211	229 096	-104 997	-56 829	-27 382	-18 614	0	0	26 363	14 341	**169 945**	**75 492**
Countries average	***-8 018***	***-8 018***	***-31 484***	***-30 892***	***186 434***	***134 051***	***-55 793***	***-36 493***	***-17 382***	***-15 841***	***-467***	***-1 940***	***8 717***	***11 119***	***82 007***	***51 986***

Note: Cash flows (components) are discounted by 5% interest rate.
Assuming that foregone earnings for all individual refer to the minimum wage, except those countries reporting full time earnings: the Czech Republic, Hungary, Poland and Portugal.
1. Year of reference 2004.
2. Year of reference 2003.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
StatLink http://dx.doi.org/10.1787/664146203473

Table A8.3.

Public net present value for an individual obtaining upper secondary or post-secondary non-tertiary education as part of initial education (2005)

	Public direct cost		Public foregone revenues		Income tax revenues		Social contribution revenues		Transfers revenues		Unemployment effect		Net present value	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Australia	-14 340	-14 340	-5 178	-5 178	23 083	18 624	0	0	1 282	16 141	6 907	3 179	**11 755**	**18 426**
Austria	-33 528	-33 528	-10 161	-10 161	31 643	11 505	26 410	19 320	7 317	17 035	8 931	3 740	**30 613**	**7 911**
Belgium	-25 972	-25 972	-9 486	-9 486	23 483	27 501	12 939	22 639	0	0	11 349	7 945	**12 314**	**22 626**
Canada	-19 181	-19 181	-2 768	-2 768	24 435	13 920	5 845	6 597	1 368	4 123	4 900	2 561	**14 599**	**5 252**
Czech Republic	-15 405	-15 405	-9 096	-7 577	7 915	7 984	5 655	6 256	0	0	16 017	10 954	**5 086**	**2 212**
Denmark	-27 190	-27 190	-13 210	-13 210	38 946	21 038	9 132	6 986	21 465	30 149	6 381	4 290	**35 524**	**22 063**
Finland[1]	-17 712	-17 712	-533	-533	15 714	7 815	3 257	2 069	12 018	15 866	5 315	4 440	**18 058**	**11 944**
France	-25 960	-25 960	-6	-6	7 399	4 800	5 695	6 028	7 433	13 413	5 168	4 536	**-271**	**2 811**
Germany	-22 915	-22 915	-11 117	-11 117	13 292	24 935	10 793	24 331	5 861	17 182	18 045	9 760	**13 959**	**42 176**
Hungary	-12 235	-12 235	-5 795	-5 541	13 561	11 304	5 213	5 359	0	0	4 322	3 597	**5 065**	**2 483**
Ireland[1]	-16 149	-16 149	-2 900	-2 900	22 914	13 901	4 337	10 022	0	0	4 272	922	**12 474**	**5 796**
Italy[1]	-27 152	-27 152	-9 675	-9 675	30 740	23 536	8 200	6 946	0	0	3 214	4 709	**5 325**	**-1 637**
Korea[2]	-10 973	-10 973	-1 279	-1 279	2 843	-556	4 725	325	0	4 777	412	190	**-4 272**	**-7 516**
New Zealand	-17 546	-17 546	-2 288	-2 288	24 463	13 971	1 016	911	3 537	27 132	2 060	1 921	**11 242**	**24 102**
Norway	-30 570	-30 570	-12 714	-12 714	36 018	20 057	10 398	6 548	5 868	13 572	14 350	5 553	**23 350**	**2 446**
Poland[1]	-7 837	-7 837	-6 667	-5 802	2 886	3 714	8 022	10 322	0	0	7 307	5 948	**3 711**	**6 345**
Portugal	-17 367	-17 367	-3 961	-3 418	30 472	16 776	13 590	9 667	0	0	1 122	1 270	**23 857**	**6 928**
Spain[1]	-5 901	-5 901	-669	-669	11 560	8 883	3 319	2 884	0	0	1 342	1 933	**9 652**	**7 130**
Sweden	-22 563	-22 563	-4 296	-4 296	24 864	17 821	6 530	4 891	17 103	21 409	7 129	7 423	**28 768**	**24 685**
Turkey	-4 599	-4 599	-5 308	-5 308	5 905	6 417	5 667	7 210	0	0	444	-2 998	**2 109**	**722**
United States	-27 182	-27 182	-2 350	-2 350	40 075	24 174	13 809	9 664	3 874	5 803	4 031	4 867	**32 257**	**14 976**
Countries average	***-19 156***	***-19 156***	***-5 688***	***-5 537***	***20 582***	***14 196***	***7 836***	***8 046***	***4 149***	***8 886***	***6 334***	***4 130***	***14 056***	***10 566***

Note: Cash flows (components) are discounted by 5% interest rate.
1. Year of reference 2004.
2. Year of reference 2003.
Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664146203473

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Table A8.4.

Public net present value for an individual obtaining tertiary education as part of initial education (2005)

	Public direct cost		Public foregone revenues		Income tax revenues		Social contribution revenues		Transfers revenues		Unemployment effect		Net present value	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Australia	-12 728	-12 728	-7 271	-7 271	67 246	48 855	0	0	0	0	120	2 501	**47 368**	**31 357**
Austria	-42 561	-42 561	-13 047	-13 047	62 721	48 018	27 964	31 383	0	0	2 509	2 119	**37 586**	**25 911**
Belgium	-19 787	-19 787	-7 262	-7 262	88 530	62 569	30 552	36 565	0	0	4 154	9 774	**96 186**	**81 858**
Canada	-30 950	-30 950	-2 834	-2 834	51 408	33 442	3 981	11 444	0	0	2 271	1 738	**23 875**	**12 839**
Czech Republic	-9 224	-8 547	-6 820	-5 557	105 460	22 936	61 528	15 252	0	0	9 890	5 155	**160 834**	**29 239**
Denmark	-47 726	-47 726	-16 003	-16 003	65 470	30 576	9 769	6 887	3 485	2 059	-759	1 506	**14 236**	**-22 702**
Finland[1]	-31 234	-31 234	-825	-825	70 330	38 061	11 252	7 186	0	6 932	6 088	3 883	**55 612**	**24 003**
France	-22 840	-22 840	-8	-8	33 346	20 177	19 513	13 530	6 199	27 305	521	2 739	**36 730**	**40 903**
Germany	-30 501	-30 501	-18 783	-18 783	65 039	33 048	31 770	22 852	0	0	16 079	6 938	**63 604**	**13 554**
Hungary	-13 606	-13 606	-7 782	-7 285	83 331	60 670	27 254	18 865	0	0	5 607	5 277	**94 804**	**63 921**
Ireland[1]	-15 358	-15 358	-3 162	-3 162	82 740	50 459	8 544	13 286	0	0	1 454	802	**74 219**	**46 027**
Italy[1]	-14 483	-14 483	-11 834	-11 834	72 942	46 791	19 255	12 602	0	0	-2 125	-189	**63 756**	**32 887**
Korea[2]	-3 210	-3 210	-1 535	-1 535	16 412	6 388	9 216	12 058	0	0	398	51	**21 280**	**13 752**
New Zealand	-14 627	-14 627	-2 322	-2 322	43 843	22 973	1 520	1 232	168	6 130	-389	346	**28 193**	**13 732**
Norway	-30 242	-30 242	-14 635	-14 635	52 085	32 960	10 079	9 348	0	0	565	1 453	**17 851**	**-1 116**
Poland[1]	-9 321	-9 321	-10 134	-8 435	18 900	10 616	44 864	29 085	0	0	12 912	11 980	**57 221**	**33 925**
Portugal	-10 988	-10 988	-5 030	-3 925	49 943	56 682	18 771	22 900	0	0	-2 425	2 306	**50 271**	**66 975**
Spain[1]	-12 633	-12 633	-1 707	-1 707	26 253	25 049	6 571	7 045	0	0	1 268	3 258	**19 752**	**21 012**
Sweden	-29 806	-29 806	-6 434	-6 434	47 562	18 852	3 830	4 687	0	0	2 045	1 777	**17 197**	**-10 923**
Turkey	-9 233	-9 233	-4 726	-4 726	12 674	12 126	11 273	11 117	0	0	358	2 971	**10 346**	**12 255**
United States	-29 995	-29 995	-3 452	-3 452	100 352	55 429	25 741	17 914	0	0	7 472	3 574	**100 119**	**43 469**
Countries average	***-21 003***	***-20 970***	***-6 934***	***-6 716***	***57 933***	***35 080***	***18 250***	***14 535***	***469***	***2 020***	***3 239***	***3 331***	***51 954***	***27 280***

Note: Cash flows (components) are discounted by 5% interest rate.
1. Year of reference 2004.
2. Year of reference 2003.
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
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INDICATOR A9

WHAT ARE THE SOCIAL OUTCOMES OF EDUCATION?

This new indicator examines the relationship between educational attainment and social measures of well-being (*i.e.* social outcomes) for 21 OECD countries. It focuses on three outcomes that reflect the health and cohesiveness of society: self-assessed health, political interest and interpersonal trust. It looks at how these outcomes vary across levels of educational attainment, with and without adjustments made for individual differences in gender, age and income. It also describes how social outcomes vary across gender, age and income groups, and whether these differences change by levels of educational attainment.

Key results

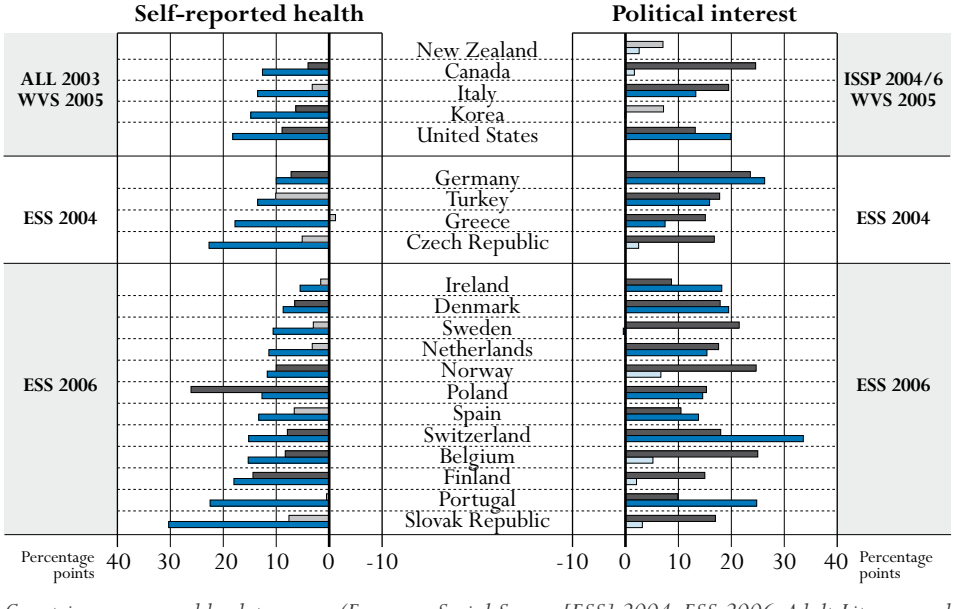
Chart A9.1. Marginal effects of education on self-reported health and political interest

The chart presents the increase in the percentage of individuals expressing better health condition and stronger political interest associated with moving from one level of educational attainment to the next higher level.

Statistically significant
- From upper secondary to tertiary
- From below upper secondary to upper secondary

Statistically non significant
- From upper secondary to tertiary
- From below upper secondary to upper secondary

An increase in educational attainment associated with moving from one level of educational attainment to the next higher level is generally positively associated with self-reported health and political interest. For self reported health, the association is larger and more consistent at the lower level of education. For political interest, the association is larger and more consistent at the higher level of education.



Countries are grouped by data source (European Social Survey [ESS] 2004, ESS 2006, Adult Literacy and Lifeskills Survey [ALL] 2003, International Social Survey Programme [ISSP] 2004 and 2006, and World Values Survey [WVS] 2005) and, within data source, ranked by ascending order of the marginal effects of moving individuals from below upper secondary to upper secondary education on self-reported health.

Source: OECD. Table A9.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664176010158

Other highlights of this indicator

- Educational attainment is positively associated with self-reported health, political interest and interpersonal trust. That is, adults who have higher levels of educational attainment are generally more likely than those with lower levels of attainment to report that their health is at least "good", are at least fairly interested in politics, and believe most people try to be fair. For self-reported health, an increase in educational attainment from below-upper secondary to upper secondary level is associated with a stronger and more consistent increase in outcomes, compared to an increase in educational attainment from upper secondary to tertiary level, in all surveyed countries except Poland. For political interest and interpersonal trust, an increase in educational attainment from upper secondary to tertiary level is broadly associated with stronger and more consistent increases in social outcomes, compared to an increase in educational attainment at the lower level.

- The association between educational attainment and social outcomes generally remains after adjusting for gender and age. Thus, the relationship does not appear to be driven by differences in education between gender or age groups. For example, even though younger adults tend to be healthier and more educated than older adults, the association between educational attainment and self-reported health remains when comparing adults of the same age and gender.

- The association between educational attainment and social outcomes generally weakens after controlling for household income, suggesting that income is one pathway to explaining this relationship. However, in most countries, the association between education and social outcomes remains strong after adjusting for household income. Hence, what individuals potentially acquire through education – *e.g.* competencies and psycho-social features such as attitudes and resilience – may have an important role in raising social outcomes, independent of education's effect on income.

- There are differences in social outcomes across gender, age and income groups, regardless of the level of educational attainment. While men generally report better health status and stronger political interest, women tend to express stronger interpersonal trust. The younger age-group (*i.e.* those 30-year-olds) are more likely to express being in good health, whereas the older age-group (*i.e.* those 60-year-olds) are more likely to express higher levels of political interest and interpersonal trust. In most countries, a larger fraction of high income individuals report better health and stronger political interest and interpersonal trust compared with the low income individuals. More interestingly, for self-reported health, differences in gender, age and income appear to be smaller at higher levels of educational attainment than at lower levels of attainment. This implies that education can potentially serve to moderate gender, age and income inequalities in health status. There is no clear reduction in disparities at higher levels of education for political interest and interpersonal trust.

Policy context

Health is among the key policy objectives for all OECD countries. This is reflected in the relatively high expenditures on health, which currently amount to 9 percent of the GDP in OECD countries (OECD, 2007c). Although the added resources spent on healthcare have generally helped people to live longer, the nature of health problems has changed, with recent increases in chronic debilitating conditions such as heart disease, diabetes and depression. Efforts to combat these trends depend in part on changing individuals' lifestyle choices – choices, which may be improved by the cognitive and psycho-social competencies developed through education.

Social cohesion, often reflected in levels of civic and social engagement, is also of high concern among the OECD countries. Various forms of civic participation and political interest have diminished, which poses a challenge to maintaining well-functioning democratic institutions and political processes. Education may have an important role to play in maintaining social cohesion by fostering the competencies, attitudes and self-confidence that undergird social and political interaction.

The Social Outcomes of Learning project of the OECD Centre for Educational Research and Innovation (CERI) conducted a comprehensive assessment of policy contexts among 11 OECD countries (OECD, 2009c). The assessment suggests that countries are concerned about both health conditions and social cohesion, and they acknowledge the important role education can play in improving both types of outcomes. However, this acknowledgement was generally not reflected in the scale or contents of existing educational programmes and interventions. One of the purposes of presenting this indicator is to stimulate debate among diverse stake-holders on the potential role that education might play in improving the health and cohesion of our countries.

Evidence and explanations

Educational attainment and social outcomes

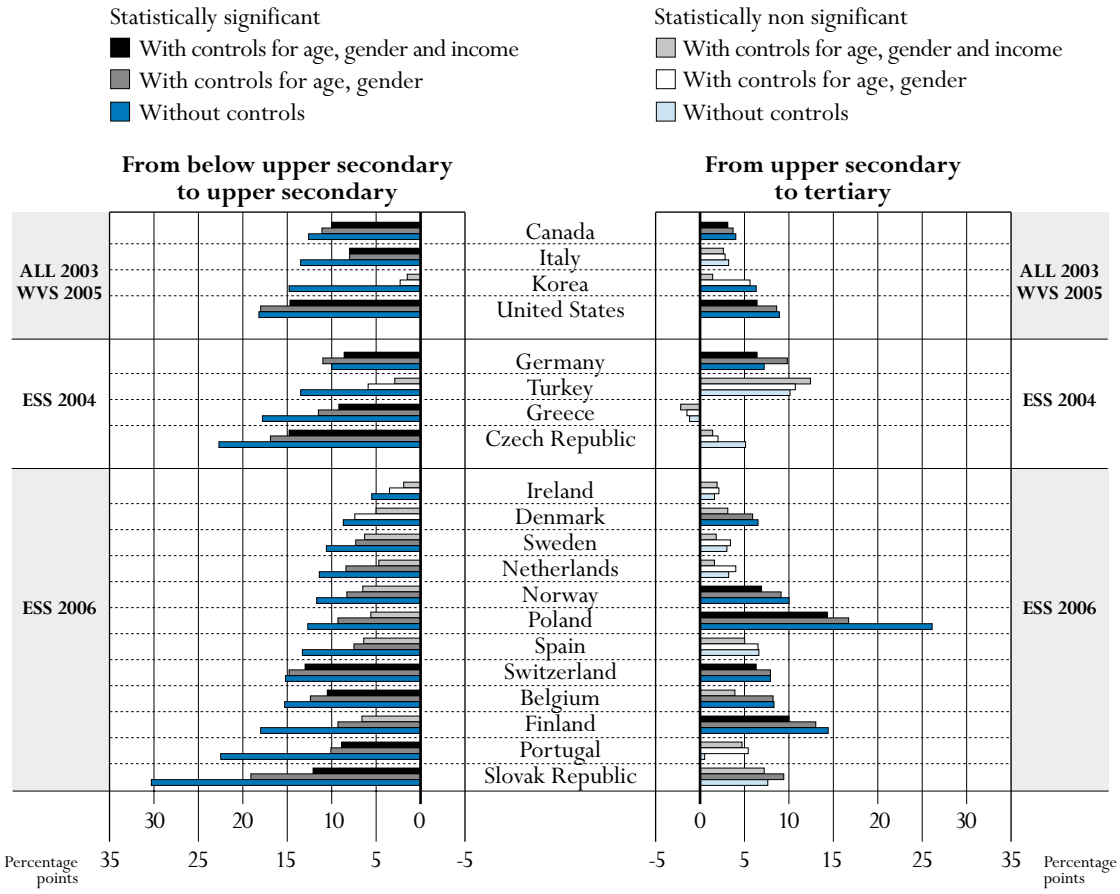
Education may affect people's lives in ways that go beyond what can be measured by economic outcomes such as labour market earnings (see Indicator A7). These potential effects include a variety of social outcomes such as health, civic participation, political interest, crime and happiness. For this year's edition of the *Education at a Glance*, we focus on three social outcomes for which comparable micro-data are available across a large number of countries, namely self-reported health, political interest and interpersonal trust. Each of the datasets includes measures of educational attainment that allow us to compare these outcomes by levels of attainment.

Education can have an impact on individuals' *health conditions* by helping them choose healthier lifestyles, better manage their illness and avoid conditions detrimental to health, such as dangerous jobs and the stress of poverty. Education's effect may operate directly by raising individual competencies, attitudes to risk and self-efficacy, or indirectly through income which helps improve living conditions (*e.g.* nutrition) and access to healthcare. Education can directly increase *civic and political engagement* by providing relevant information and experience, and by developing competencies, values, attitudes and beliefs that encourage civic participation. Education can also indirectly increase engagement by raising individuals' social status which may permit them to have better access to social and political power. Education can directly affect *interpersonal trust* since it could help individuals better understand and embrace the values of social cohesion and diversity. Education can also indirectly raise interpersonal trust since those

with higher levels of education are more likely to live and work among those with similar high levels of education, environments in which crime and anti-social behaviour tend to be lower; the opposite is likely to be true for those with low levels of education.

The empirical literature documents positive associations between education and both health and "civic and social engagement" (*e.g.* OECD, 2007b). Chart A9.1 suggests that the relationship between education and both self-reported health and political interest is indeed generally positive and consistent for a large number of countries. The relationship is also generally positive but less consistent for interpersonal trust (Chart A9.4). In Poland, Switzerland and the United States, the relationship between education and all three indicators is strong and statistically significant.

Chart A9.2. Marginal effects of education on self-reported health (with and without controls for age, gender and income)



Note: Calculations are based on linear regressions. Non-linear models (Probit models) have also been tested and shown to exhibit very similar results.

Countries are grouped by data source (European Social Survey [ESS] 2004, ESS 2006, Adult Literacy and Lifeskills Survey [ALL] 2003) and World Values Survey (WVS) 2005 and, within data source, ranked by descending order of the marginal effects of moving individuals from below upper secondary to upper secondary education (without using controls). Indicator for Korea is based on WVS 2005 while Canada, Italy and the United States are based on ALL 2003.

Source: OECD. Table A9.2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664176010158

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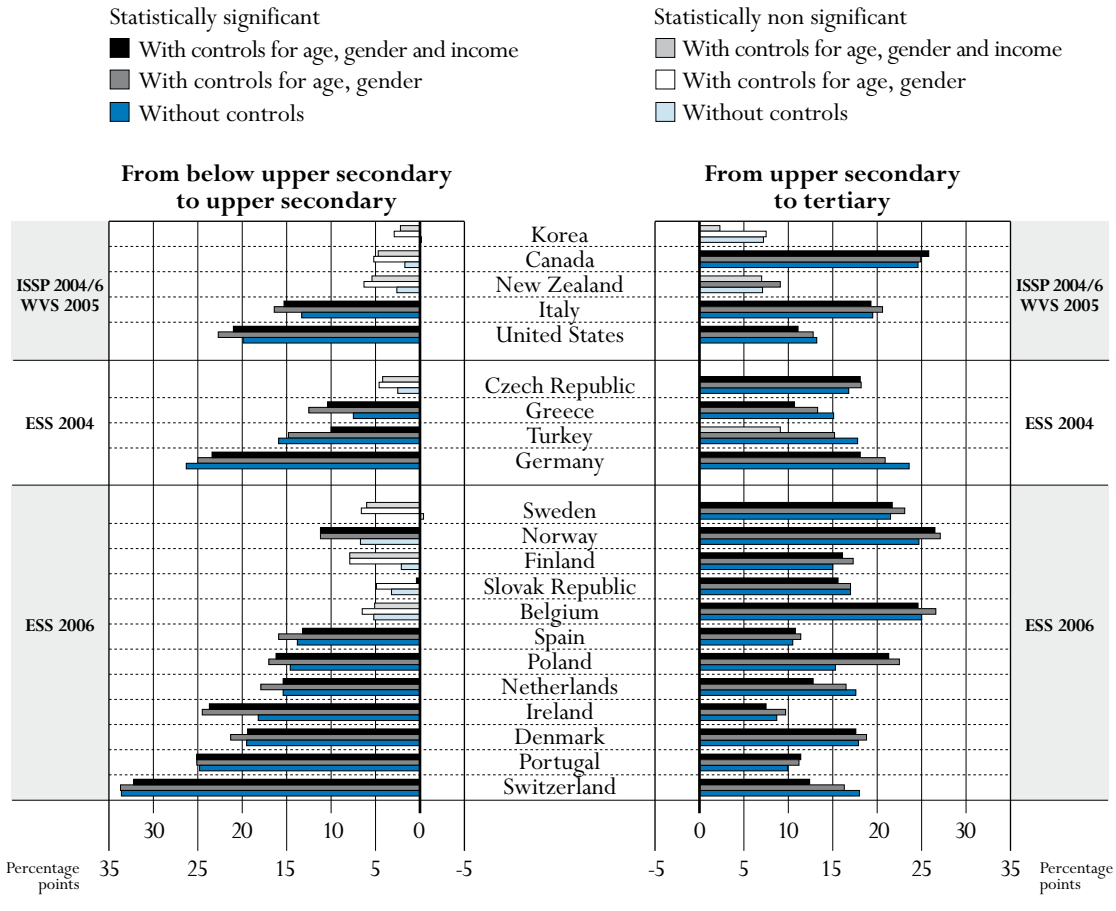
Chart A9.3. Marginal effects of education on political interest (with and without controls for age, gender and income)



Note: Calculations are based on linear regressions. Non-linear models (Probit models) have also been tested and shown to exhibit very similar results.

Countries are grouped by data source (European Social Survey [ESS] 2004, ESS 2006, International Social Survey Programme [ISSP] 2004 and 2006, and World Values Survey [WVS] 2005) and, within data source, ranked by descending order of the marginal effects of moving individuals from below upper secondary to upper secondary education (without using controls). Indicator for Korea is based on WVS 2005, Canada is based on ISSP 2006, and New Zealand and the United States are based on ISSP 2004.

Source: OECD. Table A9.3. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664176010158

One may wonder if the positive relationship between education and self-reported health is largely driven by age, which could happen if, for example, the younger cohorts report better health conditions *and* are also better educated compared to the older cohorts (Chart A1.3). Similarly, one may also wonder if the positive relationship between education and interpersonal trust is driven by gender differences, which could happen if women tend to trust others more *and* are also more educated compared to men (which is the case in many countries including Canada and Norway; Table A1.3b and Table A1.3c, available on line). In order to take into account these gender and age differences, Chart A9.2, Chart A9.3 and Chart A9.4 provide regression-based estimates adjusted for gender and age. They suggest that the relationship between educational

attainment and social outcomes generally remains strong even after accounting for gender and age. This is the case across all three indicators in Switzerland and the United States.

Is income an important pathway to explain the relationship between educational attainment and social outcomes? Chart A9.2, Chart A9.3 and Chart A9.4 suggest that the association generally diminishes after controlling for household income, which points to the importance of education's effect on income. However, the same charts also suggest that the relationship between educational attainment and social outcomes generally remains even when comparing adults at the same income level, which is consistent with the direct effects of education (*i.e.* competencies and psycho-social features) on social outcomes. This is the case in a large number of countries including Belgium, Canada, the Czech Republic, Germany, Greece, Italy, Portugal, the Slovak Republic, Switzerland and the United States.

Chart A9.4. Marginal effects of education on interpersonal trust (with and without controls for age, gender and income)

Note: Calculations are based on linear regressions. Non-linear models (Probit models) have also been tested and shown to exhibit very similar results.

Countries are grouped by data source (European Social Survey [ESS] 2004, ESS 2006, International Social Survey Programme [ISSP] 2004 and 2006, and World Values Survey [WVS] 2005) and, within data source, ranked by descending order of the marginal effects of moving individuals from below upper secondary to upper secondary education (without using controls). Indicator for Korea is based on WVS 2005, and New Zealand and the United States are based on ISSP 2004.

Source: OECD. Table A9.4. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664176010158

Marginal effects of education on social outcomes

Policy-makers are ultimately interested in understanding the features of education (*e.g.* curriculum contents, teaching styles and school environment) that have an impact on aspects of individual well-being such as health and social cohesion. Although addressing this would go well beyond the scope of what indicators can say, Chart A9.1 to Chart A9.4 present information about the levels of education that are related to social outcomes (*i.e.* marginal effects), which can help shed light on the learning experiences and/or skills that are relevant to these effects.

For self-reported health, Chart A9.1 and Chart A9.2 suggest that the marginal effects are generally larger and more consistent at the lower level of education (*i.e.* moving from below upper secondary to upper secondary education) than at the higher level of education (*i.e.* moving from upper secondary to tertiary education). In Belgium, for instance, moving an individual from below upper secondary to upper secondary education is associated with a 15 percentage point increase in the probability of (or, share of individuals) exhibiting good health conditions, while moving an individual from upper secondary to tertiary education is only associated with an 8 percentage point increase. This suggests that learning experiences at the upper secondary education level may be particularly important for raising health outcomes; this is the case even after controlling for gender, age and income.

For political interest, Chart A9.1 and Chart A9.3 suggest that the marginal effects are generally larger and more consistent at the higher level of education than at the lower level of education. In Italy, for instance, moving an individual from upper secondary to tertiary education is associated with a 20 percentage point increase in the probability of expressing interest in politics, while moving an individual from below upper secondary to upper secondary education is associated with a 13 percentage point increase. This suggests that learning experiences at the tertiary education level may be particularly important for stimulating political interest; again, this is the case even after controlling for gender, age and income.

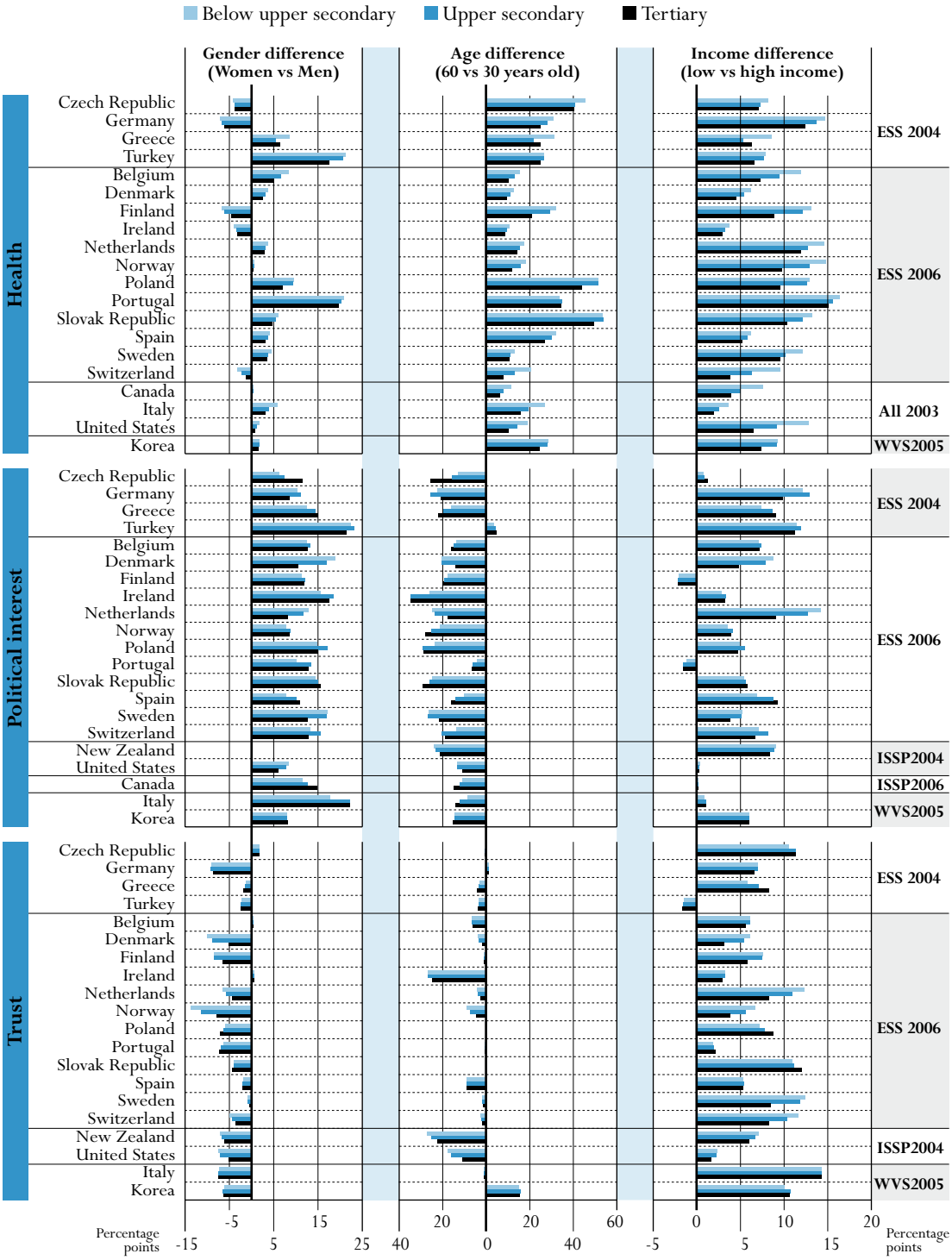
For interpersonal trust, Chart A9.4 suggests that the marginal effects are larger and more consistent at the higher level of education than at the lower level of education. This is especially the case in Denmark, Finland, Germany and Sweden. To the extent that income is associated with an individual's choice of residential areas and occupation, the marginal effects "adjusted for income" reflect direct effects of education on interpersonal trust. Chart A9.4 shows that controlling for income changes the marginal effects very little, suggesting that learning experiences at the tertiary education level may be especially relevant for fostering interpersonal trust. This might include, for instance, the recognition of the importance of diversity and of challenging one's pre-conceptions.

Education and differences by gender, age and income groups

Are there differences in social outcomes by gender, age and income? If so, can education serve to moderate such differences? Chart A9.5 presents the gender/age/income differences in the predicted probability of expressing positive social outcomes. The first column of this chart suggests that there is a *gender difference* in these social outcomes at each level of educational attainment. While men generally express higher self-reported health and political interest, women tend to express higher interpersonal trust. The second column of this chart suggests that there is also an *age difference* (when comparing 30- and 60-year-olds) in these social outcomes at each level of educational attainment. While 30-year-olds are more likely to report better health, 60 year-olds are more likely to exhibit higher political interest and interpersonal trust.

Chart A9.5. Predicted probabilities of expressing positive self-rated health, political interest and interpersonal trust

Differences in predicted probability in percentage points



Countries are grouped by data source (European Social Survey [ESS] 2004, ESS 2006, International Social Survey Programme [ISSP] 2004 and 2006, and World Values Survey [WVS] 2005) and, within data source, ranked in alphabetical order.

Source: OECD. Table A9.5, Table A9.6 and Table A9.7. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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The third column of this chart suggests that there is also an *income difference* (when comparing above and below median income groups) in the social outcomes at each level of educational attainment. In most countries, the higher income group tend to report higher health, political interest and interpersonal trust than the lower income group.

More importantly, Chart A9.5 shows how these differences vary across levels of educational attainment. The chart shows that for political interest and interpersonal trust, these differences generally change little. However, for self-reported health education can potentially help moderate differences by gender, age and income.

Definitions and methodologies

This indicator is based on the developmental work by INES Network on Labour Market, Economic and Social Outcomes of Learning (formerly called INES Network B) in collaboration with the Centre for Educational Research and Innovation (CERI). The methodologies adopted (*i.e.* marginal effects) are based on work conducted by CERI's Social Outcomes of Learning project. See Annex 3 at *www.oecd.org/edu/eag2009* for details on calculation of the marginal effects.

Indicators are calculated using micro-data from the European Social Survey (ESS) 2004 and 2006, Adult Literacy and Lifeskills Survey (ALL) 2003, World Values Survey (WVS) 2005, and International Social Survey Programme (ISSP) 2004 and 2006. The choice of surveys reflects the following aspects:

- *Country coverage:* an important objective was to select surveys for which a large number of OECD countries can be presented.
- *Comparability of social outcomes variables*: surveys were selected based on the comparability of variables on self-reported health, political interest and interpersonal trust.
- *Comparability of educational attainment variables*: only micro-data for which the distribution of educational attainment is within 10 percentage points from those published for comparable years in *Education at a Glance* are used. A few exceptions were made with the recommendation of the INES Network's country representatives [*i.e.* Canada (ISSP), Finland (ESS), Korea (WVS) and Norway (ESS)].
- *Age restriction*: surveys that cover adults aged 25 to 64 were used.
- *Sample size:* surveys with a minimum of 1 000 observations were used.

Self-reported health is captured by percentages of adults who rate their health as at least "good." ESS (2004 and 2006), ALL (2003) and WVS (2005) provide this information based on the following survey questions (bold text indicates responses counted in the outcome percentage):

ESS (2004, 2006)	How is your health in general? Would you say it is **very good, good**, fair, bad, very bad?
ALL (2003)	In general, would you say your health is **excellent, very good**, fair, poor?
WVS (2005)	All in all, how would you describe your health these days? **Very good, good**, fair, poor?

Political interest is captured by percentages of adults who say they are at least "fairly interested" in politics. ESS (2004, 2006), ISSP (2004, 2006) and WVS (2005) provide this information based on the following survey questions (bold text indicates responses counted in the outcome percentage):

ESS (2004, 2006)	How interested are you in politics? **Very interested, quite interested**, hardly interested, not at all interested.
ISSP (2004, 2006)	How interested would you say you personally are in politics? **Very interested, fairly interested**, somewhat interested, not very interested, not at all interested.
WVS (2005)	How interested would you say you are in politics? **Very interested, somewhat interested**, not very interested, not at all interested.

Interpersonal trust is captured by percentages of adults who believe that most people try to be fair. ESS (2004, 2006), ISSP (2004) and WVS (2005) provide this information based on the following survey questions (bold text indicates responses counted in the outcome percentages):

ESS (2004, 2006)	Do you think most people would try to take advantage of you if they got the chance, or would they try to be fair? (0-10 scale, with 0 = Most people would try to take advantage and 10 = Most people would try to be fair). Responses **6-10** coded as interpersonal trust.
ISSP (2004)	How often do you think that people would try to take advantage of you if they got the chance, and how often would they try to be fair? Try to take advantage almost all of the time, try to take advantage most of the time, **try to be fair most of the time, try to be fair almost all of the time.**
WVS (2005)	Do you think most people would try to take advantage of you if they got the chance, or would they try to be fair? (1-10 scale, with 1 = people would try to take advantage of you and 10 = people would try to be fair). Responses **6-10** coded as interpersonal trust.

Further references

OECD (2007b), *Understanding the Social Outcomes of Learning,* OECD, Paris.

OECD (2007c), *Health at a Glance: OECD Indicators – 2007 Edition,* OECD, Paris.

OECD, *Social Outcomes of Learning – Country Questionnaires,* OECD (unpublished), Paris.

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/664176010158

- ***Table A9.8. Observed shares of individuals expressing positive self-rated health, political interest and interpersonal trust***

Table A9.1.
Marginal effects of education on self-reported health and political interest

	Self-reported health		Political interest		
	Difference in outcome from below upper secondary to upper secondary	Difference in outcome from below upper secondary to tertiary	Difference in outcome from below upper secondary to upper secondary	Difference in outcome from below upper secondary to tertiary	Data Source
OECD countries					
Belgium	0.153	0.083	0.052	0.250	ESS 2006
Canada	0.126	0.04	0.017	0.246	ALL 2003 / ISSP 2006
Czech Republic	0.227	0.051	0.025	0.168	ESS 2004
Denmark	0.087	0.065	0.195	0.179	ESS 2006
Finland	0.180	0.144	0.021	0.150	ESS 2006
Germany	0.100	0.072	0.263	0.236	ESS 2004
Greece	0.178	-0.012	0.075	0.151	ESS 2004
Ireland	0.055	0.016	0.182	0.087	ESS 2006
Italy	0.135	0.032	0.133	0.195	ALL 2003 / WVS 2005
Korea	0.148	0.063	-0.001	0.072	WVS 2005
Netherlands	0.114	0.032	0.154	0.176	ESS 2006
New Zealand	m	m	0.026	0.071	ISSP 2004
Norway	0.117	0.100	0.067	0.247	ESS 2006
Poland	0.127	0.261	0.146	0.153	ESS 2006
Portugal	0.225	0.005	0.248	0.099	ESS 2006
Slovak Republic	0.303	0.076	0.032	0.170	ESS 2006
Spain	0.133	0.066	0.138	0.105	ESS 2006
Sweden	0.106	0.030	-0.004	0.215	ESS 2006
Switzerland	0.152	0.079	0.336	0.180	ESS 2006
Turkey	0.135	0.101	0.159	0.178	ESS 2004
United States	0.182	0.089	0.199	0.132	ALL 2003 / ISSP 2004
Country Average	***0.149***	***0.070***	***0.117***	***0.165***	

Note: Cells highlighted in grey are statistically significant and different from zero at the 5% level. Calculations are based on linear regressions. Non-linear models (Probit models) produce similar results.
Source: European Social Survey (ESS) 2004 and 2006; Adult Literacy and Lifeskills Survey (ALL) 2003; World Values Survey (WVS) 2005; International Social Survey Programme (ISSP) 2004 and 2006. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
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Table A9.2.
Marginal effects of education on self-reported health (with and without controls for age, gender and income)

	Difference in outcome from below upper secondary to upper secondary			Difference in outcome from below upper secondary to tertiary			
	no controls	controls age, sex	controls age, sex, income	no controls	controls age, sex	controls age, sex, income	Data Source
OECD countries							
Belgium	0.153	0.124	0.105	0.083	0.082	0.039	ESS 2006
Canada	0.126	0.111	0.100	0.040	0.037	0.031	ALL 2003
Czech Republic	0.227	0.169	0.148	0.051	0.020	0.014	ESS 2004
Denmark	0.087	0.074	0.050	0.065	0.059	0.031	ESS 2006
Finland	0.180	0.093	0.066	0.144	0.130	0.100	ESS 2006
Germany	0.100	0.110	0.086	0.072	0.098	0.064	ESS 2004
Greece	0.178	0.115	0.092	-0.012	-0.015	-0.022	ESS 2004
Ireland	0.055	0.035	0.019	0.016	0.021	0.019	ESS 2006
Italy	0.135	0.080	0.080	0.032	0.028	0.026	ALL 2003
Korea	0.148	0.023	0.015	0.063	0.056	0.014	WVS 2005
Netherlands	0.114	0.084	0.047	0.032	0.040	0.016	ESS 2006
Norway	0.117	0.083	0.065	0.100	0.091	0.069	ESS 2006
Poland	0.127	0.093	0.056	0.261	0.167	0.143	ESS 2006
Portugal	0.225	0.101	0.089	0.005	0.054	0.047	ESS 2006
Slovak Republic	0.303	0.191	0.121	0.076	0.094	0.072	ESS 2006
Spain	0.133	0.075	0.064	0.066	0.065	0.050	ESS 2006
Sweden	0.106	0.073	0.063	0.030	0.034	0.018	ESS 2006
Switzerland	0.152	0.148	0.130	0.079	0.079	0.063	ESS 2006
Turkey	0.135	0.059	0.029	0.101	0.107	0.124	ESS 2004
United States	0.182	0.180	0.147	0.089	0.086	0.064	ALL 2003
Country Average	***0.149***	***0.101***	***0.079***	***0.070***	***0.067***	***0.049***	

Note: Cells highlighted in grey are statistically significant and different from zero at the 5% level. Calculations are based on linear regressions. Non-linear models (Probit models) produce similar results.
Source: ESS 2004 and 2006; ALL 2003; WVS 2005. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
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Table A9.3.

Marginal effects of education on political interest (with and without controls for age, gender and income)

OECD countries	Difference in outcome from below upper secondary to upper secondary			Difference in outcome from below upper secondary to tertiary			Data Source
	no controls	controls age, sex	controls age, sex, income	no controls	controls age, sex	controls age, sex, income	
Belgium	0.052	0.065	0.051	0.25	0.266	0.246	ESS 2006
Canada	0.017	0.052	0.047	0.246	0.249	0.258	ISSP 2006
Czech Republic	0.025	0.046	0.042	0.168	0.182	0.181	ESS 2004
Denmark	0.195	0.213	0.194	0.179	0.188	0.176	ESS 2006
Finland	0.021	0.079	0.079	0.15	0.173	0.161	ESS 2006
Germany	0.263	0.25	0.234	0.236	0.209	0.181	ESS 2004
Greece	0.075	0.125	0.104	0.151	0.133	0.107	ESS 2004
Ireland	0.182	0.245	0.237	0.087	0.097	0.075	ESS 2006
Italy	0.133	0.164	0.153	0.195	0.206	0.193	WVS 2005
Korea	-0.001	0.029	0.022	0.072	0.075	0.023	WVS 2005
Netherlands	0.154	0.179	0.154	0.176	0.165	0.128	ESS 2006
New Zealand	0.026	0.063	0.054	0.071	0.091	0.07	ISSP 2004
Norway	0.067	0.112	0.112	0.247	0.271	0.265	ESS 2006
Poland	0.146	0.17	0.162	0.153	0.225	0.213	ESS 2006
Portugal	0.248	0.251	0.251	0.099	0.112	0.114	ESS 2006
Slovak Republic	0.032	0.049	0.004	0.17	0.17	0.156	ESS 2006
Spain	0.138	0.159	0.132	0.105	0.114	0.108	ESS 2006
Sweden	-0.004	0.066	0.06	0.215	0.231	0.217	ESS 2006
Switzerland	0.336	0.337	0.322	0.18	0.163	0.124	ESS 2006
Turkey	0.159	0.148	0.1	0.178	0.152	0.091	ESS 2004
United States	0.199	0.227	0.21	0.132	0.128	0.111	ISSP 2004
Country Average	***0.117***	***0.144***	***0.130***	***0.165***	***0.171***	***0.152***	

Note: Cells highlighted in grey are statistically significant and different from zero at the 5% level. Calculations are based on linear regressions. Non-linear models (Probit models) produce similar results.
Source: ESS 2004 and 2006; WVS 2005; ISSP 2004 and 2006. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
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Table A9.4.

Marginal effects of education on interpersonal trust (with and without controls for age, gender and income)

OECD countries	Difference in outcome from below upper secondary to upper secondary			Difference in outcome from below upper secondary to tertiary			Data Source
	no controls	controls age, sex	controls age, sex, income	no controls	controls age, sex	controls age, sex, income	
Belgium	0.066	0.074	0.057	0.147	0.15	0.126	ESS 2006
Czech Republic	0.116	0.115	0.102	-0.005	-0.005	-0.015	ESS 2004
Denmark	0.054	0.057	0.042	0.113	0.114	0.107	ESS 2006
Finland	0.017	0.017	0.002	0.109	0.098	0.077	ESS 2006
Germany	0.046	0.066	0.05	0.117	0.135	0.119	ESS 2004
Greece	0.062	0.074	0.051	0.082	0.084	0.065	ESS 2004
Ireland	0.038	0.085	0.087	0.094	0.113	0.081	ESS 2006
Italy	0.07	0.074	0.02	0.017	0.017	-0.03	WVS 2005
Korea	0.031	-0.032	-0.041	0.016	0.025	-0.014	WVS 2005
Netherlands	0.115	0.124	0.1	0.128	0.127	0.118	ESS 2006
New Zealand	0.018	0.057	0.048	0.045	0.065	0.053	ISSP 2004
Norway	0.072	0.094	0.089	0.113	0.106	0.098	ESS 2006
Poland	0.069	0.066	0.044	0.131	0.123	0.12	ESS 2006
Portugal	0.072	0.07	0.071	0.07	0.072	0.058	ESS 2006
Slovak Republic	0.017	0.031	-0.005	0.075	0.077	0.057	ESS 2006
Spain	0.134	0.149	0.138	0.031	0.03	0.026	ESS 2006
Sweden	0.044	0.049	0.043	0.159	0.16	0.145	ESS 2006
Switzerland	0.139	0.142	0.114	0.118	0.125	0.097	ESS 2006
Turkey	0.023	0.031	0.026	0.028	0.026	0.01	ESS 2004
United States	0.163	0.169	0.146	0.176	0.178	0.157	ISSP 2004
Country Average	***0.068***	***0.076***	***0.059***	***0.088***	***0.091***	***0.073***	

Note: Cells highlighted in grey are statistically significant and different from zero at the 5% level. Calculations are based on linear regressions. Non-linear models (Probit models) produce similar results.
Source: ESS 2004 and 2006; WVS 2005; ISSP 2004 and 2006. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
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Table A9.5.

Predicted shares of individuals expressing positive self-rated health, political interest and interpersonal trust, by gender

OECD countries	Education	Self-reported health		Political interest		Interpersonal trust	
		Females	Males	Females	Males	Females	Males
Belgium	Below upper secondary	0.662	0.746	0.277	0.402	0.460	0.464
	Upper secondary	0.772	0.839	0.330	0.462	0.526	0.530
	Tertiary	0.844	0.896	0.581	0.708	0.658	0.661
Canada	Below upper secondary	0.793	0.798	0.178	0.292	m	m
	Upper secondary	0.886	0.889	0.220	0.347	m	m
	Tertiary	0.919	0.921	0.464	0.612	m	m
Czech Republic	Below upper secondary	0.511	0.469	0.091	0.153	0.322	0.340
	Upper secondary	0.691	0.653	0.122	0.196	0.437	0.455
	Tertiary	0.701	0.664	0.296	0.411	0.418	0.436
Denmark	Below upper secondary	0.703	0.740	0.377	0.566	0.804	0.704
	Upper secondary	0.769	0.801	0.593	0.763	0.844	0.755
	Tertiary	0.826	0.852	0.806	0.911	0.933	0.880
Finland	Below upper secondary	0.692	0.626	0.291	0.404	0.798	0.713
	Upper secondary	0.746	0.684	0.368	0.489	0.802	0.718
	Tertiary	0.858	0.813	0.548	0.666	0.873	0.808
Germany	Below upper secondary	0.585	0.514	0.279	0.381	0.501	0.410
	Upper secondary	0.681	0.613	0.523	0.634	0.556	0.464
	Tertiary	0.751	0.690	0.731	0.816	0.673	0.586
Greece	Below upper secondary	0.766	0.853	0.215	0.340	0.155	0.143
	Upper secondary	0.874	0.929	0.322	0.466	0.215	0.200
	Tertiary	0.845	0.910	0.453	0.602	0.297	0.279
Ireland	Below upper secondary	0.855	0.816	0.204	0.360	0.468	0.475
	Upper secondary	0.881	0.846	0.441	0.625	0.551	0.558
	Tertiary	0.896	0.864	0.542	0.717	0.660	0.666
Italy	Below upper secondary	0.775	0.833	0.155	0.332	0.509	0.435
	Upper secondary	0.868	0.908	0.290	0.511	0.555	0.481
	Tertiary	0.906	0.936	0.488	0.710	0.548	0.474
Korea	Below upper secondary	0.789	0.808	0.377	0.456	0.733	0.672
	Upper secondary	0.794	0.813	0.396	0.476	0.692	0.627
	Tertiary	0.845	0.860	0.465	0.546	0.700	0.636
Netherlands	Below upper secondary	0.710	0.747	0.442	0.571	0.639	0.574
	Upper secondary	0.777	0.809	0.616	0.733	0.746	0.688
	Tertiary	0.799	0.829	0.785	0.868	0.850	0.807
New Zealand	Below upper secondary	m	m	0.525	0.526	0.677	0.605
	Upper secondary	m	m	0.580	0.582	0.725	0.657
	Tertiary	m	m	0.661	0.662	0.778	0.717
Norway	Below upper secondary	0.727	0.734	0.236	0.314	0.747	0.609
	Upper secondary	0.792	0.797	0.336	0.425	0.833	0.719
	Tertiary	0.869	0.873	0.615	0.701	0.913	0.834
Poland	Below upper secondary	0.471	0.567	0.223	0.371	0.285	0.226
	Upper secondary	0.546	0.639	0.378	0.549	0.336	0.272
	Tertiary	0.748	0.818	0.619	0.769	0.446	0.375
Portugal	Below upper secondary	0.392	0.601	0.177	0.277	0.313	0.249
	Upper secondary	0.493	0.696	0.416	0.549	0.384	0.315
	Tertiary	0.530	0.728	0.535	0.665	0.455	0.381
Slovak Republic	Below upper secondary	0.459	0.520	0.262	0.405	0.300	0.260
	Upper secondary	0.647	0.702	0.298	0.447	0.307	0.267
	Tertiary	0.741	0.788	0.470	0.626	0.371	0.327
Spain	Below upper secondary	0.621	0.661	0.168	0.246	0.388	0.369
	Upper secondary	0.692	0.728	0.300	0.402	0.527	0.507
	Tertiary	0.758	0.791	0.408	0.517	0.553	0.533
Sweden	Below upper secondary	0.729	0.774	0.396	0.568	0.640	0.632
	Upper secondary	0.798	0.835	0.474	0.645	0.686	0.678
	Tertiary	0.815	0.851	0.718	0.845	0.829	0.823
Switzerland	Below upper secondary	0.755	0.722	0.202	0.333	0.597	0.549
	Upper secondary	0.876	0.854	0.517	0.673	0.713	0.670
	Tertiary	0.938	0.925	0.676	0.805	0.813	0.778
Turkey	Below upper secondary	0.491	0.703	0.288	0.513	0.234	0.212
	Upper secondary	0.530	0.736	0.397	0.629	0.268	0.244
	Tertiary	0.653	0.829	0.543	0.758	0.298	0.273
United States	Below upper secondary	0.659	0.676	0.400	0.484	0.502	0.427
	Upper secondary	0.813	0.826	0.632	0.709	0.664	0.593
	Tertiary	0.886	0.895	0.762	0.823	0.829	0.777
Country Average	***Below upper secondary***	***0.657***	***0.695***	***0.282***	***0.406***	***0.476***	***0.434***
	Upper secondary	***0.746***	***0.780***	***0.418***	***0.553***	***0.545***	***0.505***
	Tertiary	***0.806***	***0.837***	***0.594***	***0.719***	***0.625***	***0.592***

Note: Predicted shares are determined based on Probit models relating outcome to educational attainment, gender, age and income. Calculations were made by using country means of age and income.

Source: ESS 2004 and 2006; ALL 2003; WVS 2005; ISSP 2004 and 2006. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

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Table A9.6.

Predicted shares of individuals expressing positive self-rated health, political interest and interpersonal trust, by age

OECD countries	Education	Self-reported health			Political interest			Interpersonal trust		
		Age 30	Age 45	Age 60	Age 30	Age 45	Age 60	Age 30	Age 45	Age 60
Belgium	Below upper secondary	0.725	0.669	0.569	0.210	0.282	0.345	0.418	0.469	0.484
	Upper secondary	0.823	0.778	0.693	0.256	0.336	0.402	0.483	0.535	0.550
	Tertiary	0.884	0.849	0.780	0.495	0.587	0.654	0.618	0.666	0.680
Canada	Below upper secondary	0.827	0.806	0.709	0.167	0.149	0.275	m	m	m
	Upper secondary	0.908	0.895	0.826	0.208	0.187	0.328	m	m	m
	Tertiary	0.936	0.926	0.871	0.446	0.417	0.592	m	m	m
Czech Republic	Below upper secondary	0.733	0.504	0.278	0.046	0.089	0.174	0.325	0.317	0.328
	Upper secondary	0.863	0.685	0.453	0.065	0.119	0.221	0.440	0.431	0.443
	Tertiary	0.869	0.695	0.465	0.188	0.292	0.445	0.421	0.412	0.424
Denmark	Below upper secondary	0.748	0.731	0.621	0.300	0.335	0.504	0.768	0.819	0.807
	Upper secondary	0.808	0.794	0.696	0.509	0.549	0.711	0.812	0.856	0.846
	Tertiary	0.858	0.847	0.763	0.743	0.774	0.882	0.915	0.940	0.934
Finland	Below upper secondary	0.838	0.699	0.516	0.219	0.271	0.394	0.779	0.814	0.791
	Upper secondary	0.874	0.752	0.579	0.288	0.347	0.479	0.784	0.818	0.795
	Tertiary	0.940	0.862	0.729	0.458	0.524	0.656	0.859	0.885	0.868
Germany	Below upper secondary	0.752	0.567	0.443	0.197	0.257	0.422	0.535	0.474	0.520
	Upper secondary	0.825	0.663	0.544	0.418	0.496	0.673	0.589	0.529	0.575
	Tertiary	0.874	0.736	0.625	0.636	0.708	0.842	0.703	0.648	0.690
Greece	Below upper secondary	0.888	0.751	0.576	0.133	0.243	0.293	0.129	0.173	0.158
	Upper secondary	0.949	0.863	0.729	0.217	0.356	0.414	0.183	0.238	0.218
	Tertiary	0.934	0.833	0.685	0.330	0.489	0.550	0.258	0.323	0.301
Ireland	Below upper secondary	0.874	0.875	0.766	0.105	0.221	0.363	0.342	0.487	0.610
	Upper secondary	0.897	0.898	0.801	0.283	0.463	0.628	0.421	0.570	0.688
	Tertiary	0.911	0.912	0.823	0.375	0.565	0.720	0.534	0.677	0.780
Italy	Below upper secondary	0.884	0.765	0.614	0.124	0.147	0.211	0.503	0.511	0.513
	Upper secondary	0.941	0.862	0.743	0.244	0.278	0.366	0.549	0.557	0.559
	Tertiary	0.960	0.900	0.802	0.433	0.474	0.572	0.542	0.550	0.552
Korea	Below upper secondary	0.871	0.799	0.585	0.271	0.447	0.414	0.764	0.761	0.613
	Upper secondary	0.875	0.804	0.592	0.288	0.467	0.434	0.725	0.722	0.566
	Tertiary	0.910	0.853	0.665	0.350	0.536	0.503	0.733	0.729	0.575
Netherlands	Below upper secondary	0.774	0.728	0.599	0.342	0.420	0.589	0.610	0.647	0.652
	Upper secondary	0.832	0.793	0.678	0.514	0.595	0.748	0.720	0.752	0.756
	Tertiary	0.850	0.813	0.704	0.701	0.769	0.877	0.831	0.855	0.857
New Zealand	Below upper secondary	m	m	m	0.452	0.481	0.690	0.535	0.677	0.805
	Upper secondary	m	m	m	0.508	0.537	0.738	0.590	0.725	0.841
	Tertiary	m	m	m	0.592	0.620	0.802	0.654	0.778	0.879
Norway	Below upper secondary	0.804	0.731	0.621	0.123	0.267	0.333	0.687	0.762	0.777
	Upper secondary	0.856	0.795	0.697	0.194	0.372	0.446	0.785	0.845	0.857
	Tertiary	0.915	0.872	0.795	0.441	0.651	0.719	0.881	0.921	0.928
Poland	Below upper secondary	0.718	0.466	0.204	0.131	0.224	0.365	0.294	0.275	0.296
	Upper secondary	0.778	0.542	0.261	0.252	0.380	0.543	0.345	0.325	0.348
	Tertiary	0.906	0.744	0.465	0.478	0.620	0.764	0.456	0.433	0.458
Portugal	Below upper secondary	0.578	0.383	0.240	0.158	0.175	0.200	0.348	0.267	0.354
	Upper secondary	0.676	0.484	0.327	0.387	0.413	0.449	0.423	0.334	0.429
	Tertiary	0.708	0.521	0.361	0.506	0.532	0.569	0.494	0.402	0.500
Slovak Republic	Below upper secondary	0.693	0.450	0.157	0.164	0.281	0.410	0.297	0.305	0.297
	Upper secondary	0.838	0.638	0.299	0.192	0.318	0.452	0.304	0.312	0.304
	Tertiary	0.895	0.733	0.398	0.339	0.492	0.631	0.367	0.376	0.367
Spain	Below upper secondary	0.757	0.584	0.435	0.109	0.206	0.209	0.366	0.378	0.454
	Upper secondary	0.813	0.657	0.511	0.214	0.352	0.356	0.504	0.516	0.593
	Tertiary	0.862	0.727	0.590	0.308	0.464	0.468	0.530	0.542	0.618
Sweden	Below upper secondary	0.799	0.722	0.667	0.300	0.350	0.564	0.633	0.637	0.652
	Upper secondary	0.856	0.791	0.743	0.373	0.426	0.640	0.678	0.682	0.697
	Tertiary	0.870	0.809	0.763	0.625	0.676	0.842	0.824	0.827	0.837
Switzerland	Below upper secondary	0.863	0.739	0.658	0.125	0.214	0.263	0.603	0.581	0.630
	Upper secondary	0.941	0.866	0.809	0.393	0.535	0.597	0.718	0.698	0.741
	Tertiary	0.974	0.932	0.895	0.556	0.691	0.745	0.817	0.802	0.835
Turkey	Below upper secondary	0.606	0.441	0.339	0.267	0.333	0.228	0.219	0.241	0.251
	Upper secondary	0.644	0.480	0.377	0.373	0.447	0.328	0.252	0.276	0.286
	Tertiary	0.754	0.606	0.501	0.518	0.593	0.469	0.282	0.307	0.318
United States	Below upper secondary	0.740	0.656	0.548	0.331	0.417	0.465	0.420	0.514	0.594
	Upper secondary	0.869	0.811	0.726	0.561	0.649	0.693	0.586	0.675	0.745
	Tertiary	0.925	0.884	0.820	0.702	0.776	0.810	0.771	0.837	0.882
Country Average	***Below upper secondary***	***0.774***	***0.653***	***0.507***	***0.204***	***0.277***	***0.367***	***0.479***	***0.505***	***0.529***
	Upper secondary	***0.843***	***0.743***	***0.604***	***0.321***	***0.410***	***0.507***	***0.545***	***0.570***	***0.592***
	Tertiary	***0.887***	***0.803***	***0.675***	***0.487***	***0.583***	***0.672***	***0.625***	***0.645***	***0.664***

Note: Predicted shares are determined based on Probit models relating outcome to educational attainment, gender, age and income. Calculations were made by using country means of gender and income.

Source: ESS 2004 and 2006; ALL 2003; WVS 2005; ISSP 2004 and 2006. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

StatLink http://dx.doi.org/10.1787/664176010158

Table A9.7.

Predicted shares of individuals expressing positive self-rated health, political interest and interpersonal trust, by income

OECD countries	Education	Self-reported health		Political interest		Interpersonal trust	
		Lower Income	Higher Income	Lower Income	Higher Income	Lower Income	Higher Income
Belgium	Below upper secondary	0.643	0.761	0.303	0.374	0.443	0.504
	Upper secondary	0.756	0.851	0.359	0.433	0.508	0.569
	Tertiary	0.832	0.904	0.611	0.682	0.642	0.697
Canada	Below upper secondary	0.766	0.841	0.227	0.227	m	m
	Upper secondary	0.867	0.917	0.276	0.276	m	m
	Tertiary	0.904	0.943	0.533	0.533	m	m
Czech Republic	Below upper secondary	0.469	0.551	0.129	0.136	0.300	0.405
	Upper secondary	0.653	0.726	0.168	0.176	0.411	0.525
	Tertiary	0.664	0.735	0.370	0.383	0.393	0.505
Denmark	Below upper secondary	0.689	0.751	0.430	0.517	0.731	0.792
	Upper secondary	0.757	0.810	0.645	0.723	0.780	0.834
	Tertiary	0.815	0.860	0.841	0.889	0.896	0.927
Finland	Below upper secondary	0.593	0.724	0.361	0.341	0.724	0.800
	Upper secondary	0.654	0.775	0.444	0.423	0.729	0.804
	Tertiary	0.790	0.878	0.624	0.603	0.817	0.874
Germany	Below upper secondary	0.480	0.626	0.275	0.396	0.435	0.505
	Upper secondary	0.580	0.718	0.519	0.649	0.490	0.560
	Tertiary	0.660	0.784	0.727	0.826	0.611	0.677
Greece	Below upper secondary	0.785	0.871	0.225	0.299	0.134	0.192
	Upper secondary	0.886	0.939	0.335	0.421	0.189	0.260
	Tertiary	0.860	0.922	0.466	0.557	0.266	0.349
Ireland	Below upper secondary	0.817	0.853	0.258	0.286	0.466	0.498
	Upper secondary	0.847	0.879	0.511	0.545	0.549	0.581
	Tertiary	0.865	0.895	0.612	0.644	0.658	0.687
Italy	Below upper secondary	0.786	0.822	0.254	0.262	0.403	0.546
	Upper secondary	0.876	0.901	0.420	0.431	0.449	0.591
	Tertiary	0.912	0.931	0.627	0.636	0.442	0.585
Korea	Below upper secondary	0.782	0.875	0.413	0.472	0.691	0.791
	Upper secondary	0.788	0.879	0.432	0.492	0.647	0.755
	Tertiary	0.839	0.913	0.502	0.562	0.656	0.762
Netherlands	Below upper secondary	0.643	0.789	0.437	0.578	0.541	0.664
	Upper secondary	0.718	0.845	0.611	0.739	0.658	0.767
	Tertiary	0.742	0.862	0.781	0.872	0.783	0.865
New Zealand	Below upper secondary	m	m	0.478	0.568	0.613	0.684
	Upper secondary	m	m	0.534	0.623	0.665	0.732
	Tertiary	m	m	0.617	0.700	0.724	0.785
Norway	Below upper secondary	0.637	0.785	0.258	0.294	0.643	0.710
	Upper secondary	0.712	0.841	0.362	0.402	0.749	0.804
	Tertiary	0.808	0.905	0.641	0.680	0.856	0.894
Poland	Below upper secondary	0.449	0.578	0.287	0.335	0.216	0.287
	Upper secondary	0.524	0.650	0.456	0.511	0.260	0.338
	Tertiary	0.730	0.825	0.692	0.739	0.361	0.448
Portugal	Below upper secondary	0.446	0.610	0.232	0.220	0.268	0.286
	Upper secondary	0.549	0.705	0.493	0.477	0.336	0.356
	Tertiary	0.585	0.736	0.612	0.596	0.404	0.425
Slovak Republic	Below upper secondary	0.416	0.548	0.323	0.377	0.227	0.336
	Upper secondary	0.605	0.726	0.362	0.419	0.233	0.344
	Tertiary	0.704	0.808	0.541	0.598	0.290	0.410
Spain	Below upper secondary	0.580	0.642	0.189	0.258	0.388	0.441
	Upper secondary	0.653	0.711	0.328	0.416	0.527	0.581
	Tertiary	0.724	0.775	0.439	0.531	0.553	0.606
Sweden	Below upper secondary	0.690	0.811	0.457	0.509	0.574	0.698
	Upper secondary	0.764	0.865	0.537	0.588	0.622	0.740
	Tertiary	0.783	0.878	0.769	0.807	0.782	0.866
Switzerland	Below upper secondary	0.698	0.793	0.241	0.312	0.523	0.639
	Upper secondary	0.837	0.900	0.570	0.652	0.646	0.749
	Tertiary	0.914	0.952	0.722	0.789	0.758	0.841
Turkey	Below upper secondary	0.546	0.624	0.325	0.439	0.244	0.229
	Upper secondary	0.585	0.661	0.438	0.557	0.279	0.263
	Tertiary	0.703	0.768	0.584	0.696	0.310	0.294
United States	Below upper secondary	0.615	0.742	0.426	0.429	0.452	0.475
	Upper secondary	0.780	0.871	0.657	0.660	0.618	0.640
	Tertiary	0.861	0.926	0.782	0.785	0.795	0.811
Country Average	***Below upper secondary***	***0.626***	***0.730***	***0.311***	***0.363***	***0.451***	***0.524***
	Upper secondary	***0.720***	***0.808***	***0.450***	***0.505***	***0.517***	***0.590***
	Tertiary	***0.785***	***0.860***	***0.624***	***0.672***	***0.600***	***0.665***

Note: Predicted shares are determined based on Probit models relating outcome to educational attainment, gender, age and income. Calculations were made by using country means of gender and age.
Source: ESS 2004 and 2006; ALL 2003; WVS 2005; ISSP 2004 and 2006. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
StatLink http://dx.doi.org/10.1787/664176010158

Chapter

B

Financial and Human Resources Invested In Education

Classification of educational expenditure

Educational expenditure in this chapter are classified through three dimensions:

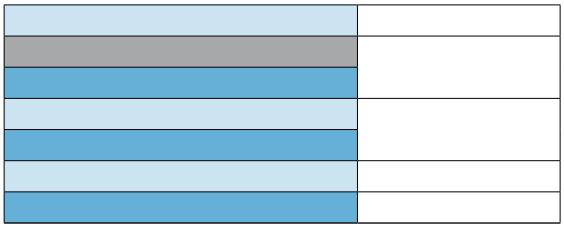
- The first dimension – represented by the horizontal axis in the diagram below – relates to the location where spending occurs. Spending on schools and universities, education ministries and other agencies directly involved in providing and supporting education is one component of this dimension. Spending on education outside these institutions is another.
- The second dimension – represented by the vertical axis in the diagram below – classifies the goods and services that are purchased. Not all expenditure on educational institutions can be classified as direct educational or instructional expenditure. Educational institutions in many OECD countries offer various ancillary services – such as meals, transports, housing, etc. – in addition to teaching services to support students and their families. At the tertiary level spending on research and development can be significant. Not all spending on educational goods and services occurs within educational institutions. For example, families may purchase textbooks and materials themselves or seek private tutoring for their children.
- The third dimension – represented by the colours in the diagram below – distinguishes among the sources from which funding originates. These include the public sector and international agencies (indicated by the light blue colour), and households and other private entities (indicated by the medium-blue colour). Where private expenditure on education is subsidised by public funds, this is indicated by cells in the grey colour.

Public sources of funds | Private sources of funds | Private funds publicly subsidised

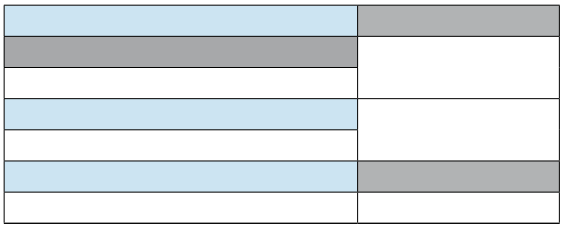
	Spending on educational institutions (*e.g.* schools, universities, educational administration and student welfare services)	**Spending on education outside educational institutions** (*e.g.* private purchases of educational goods and services, including private tutoring)
Spending on educational core services	*e.g.* public spending on instructional services in educational institutions	*e.g.* subsidised private spending on books
	e.g. subsidised private spending on instructional services in educational institutions	*e.g.* private spending on books and other school materials or private tutoring
	e.g. private spending on tuition fees	
Spending on research and development	*e.g.* public spending on university research	
	e.g. funds from private industry for research and development in educational institutions	
Spending on educational services other than instruction	*e.g.* public spending on ancillary services such as meals, transport to schools, or housing on the campus	*e.g.* subsidised private spending on student living costs or reduced prices for transport
	e.g. private spending on fees for ancillary services	*e.g.* private spending on student living costs or transport

Coverage diagrams

For Indicators B1, B2 and B3



For Indicators B4 and B5



For Indicator B6

INDICATOR B1

HOW MUCH IS SPENT PER STUDENT?

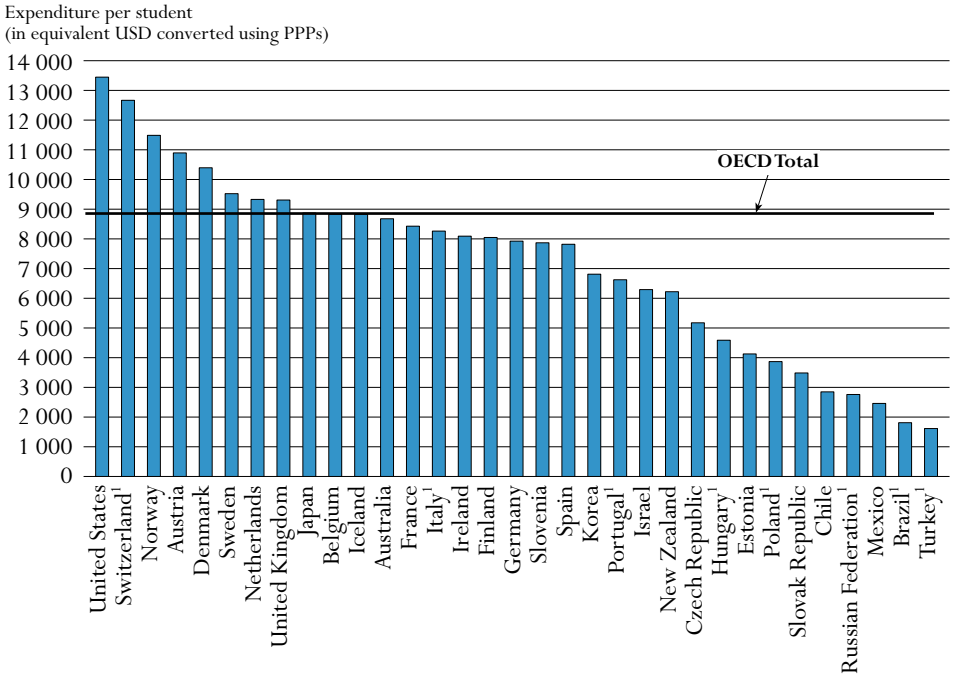
This indicator provides an assessment of the investment in each student. Expenditure on educational institutions per student is largely influenced by teachers' salaries (see Indicators B6 and D3), pension systems, instructional and teaching hours (see Indicators B7, D1 and D4), the cost of teaching materials and facilities, the programme orientation provided to pupils/students (*e.g.* general or vocational) and the number of students enrolled in the education system (see Indicator C1). Policies to attract new teachers or to reduce average class size or change staffing patterns (see Indicator D2) have also contributed to changes in the expenditure on educational institutions per student over time.

Key results

Chart B1.1. Annual expenditure on educational institutions per student in primary through tertiary education (2006)

Expenditure on educational institutions per student provides a measure of the unit costs of formal education. The chart shows annual expenditure on educational institutions per student in equivalent USD converted using purchasing power parities, based on full-time equivalents.

OECD countries as a whole spend USD 8 857 annually per student from primary through tertiary education levels: USD 6 517 per primary student, USD 7 966 per secondary student and USD 15 791 per tertiary student. On average, OECD countries spend nearly twice as much per student at the tertiary level as at the primary level. However, these averages mask a broad range of expenditure patterns across countries.



1. Public institutions only.

Countries are ranked in descending order of expenditure on educational institutions per student.

Source: OECD. Table B1.1a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Other highlights of this indicator

- Excluding R&D activities and ancillary services, expenditure on core educational services in tertiary institutions is, on average, USD 8 418 per student. Expenditure ranges from USD 5 000 or less in Hungary, Poland, the Slovak Republic and Turkey to more than USD 10 000 in Austria, Canada, Norway, Switzerland, the United States and the partner country Brazil.

- OECD countries spend, on average, USD 93 775 per student over the theoretical duration of primary and secondary studies. The cumulative expenditure for each primary and secondary student ranges from less than USD 40 000 in Mexico and the Slovak Republic, and the partner countries Brazil, Chile and the Russian Federation, to USD 100 000 or more in Austria, Denmark, Iceland, Ireland, Italy, Luxembourg, Norway, Switzerland, the United Kingdom and the United States.

- There is a clear positive relationship between spending on educational institutions per student and GDP per capita at the primary and secondary levels; this relationship is less clear at the tertiary level. Nevertheless, countries with low levels of expenditure on educational institutions per student may have similar levels of expenditure per student in proportion of GDP per capita than countries with high levels of spending per student. For example, at the primary, secondary and post-secondary non-tertiary level of education, Korea and Portugal – where expenditure on educational institutions per student and GDP per capita is below the OECD average – spend a higher proportion per student relative to GDP per capita than the OECD average.

- Expenditure on educational institutions per primary, secondary and post-secondary non-tertiary student increased in every country, on average, by 40% between 1995 and 2006, a period of relatively stable student numbers. The pattern is different at the tertiary level where spending per student has fallen in one third of OECD and partner countries; expenditure has not kept up with the expansion in student numbers. However, from 2000 to 2006, expenditure on educational institutions per student increased by 11 percentage points on average in OECD countries after having remained stable between 1995 and 2000. This shows governments' efforts to deal with the expansion of tertiary education through massive investment.

- Five out of the 11 countries (the Czech Republic, Mexico, Poland, the Slovak Republic and Switzerland) in which student enrolments in tertiary education increased by more than 20 percentage points between 2000 and 2006 increased their expenditure on tertiary educational institutions by at least the same proportion over the period, whereas Hungary, Iceland, Ireland and the partner countries Brazil, Chile and Israel did not.

Policy context

Effective schools require the right combination of trained and talented personnel, appropriate curriculum, adequate facilities and motivated students who are ready to learn. The demand for quality education, which can translate into higher costs per student, must be balanced against other demands on public expenditure and the overall burden of taxation. As a result, the question of whether the resources devoted to education yield adequate returns to the investments made figures prominently in the public debate. Although it is difficult to assess the optimal volume of resources needed to prepare each student for life and work in modern societies, international comparisons of spending on educational institutions per student (see definitions and methodologies at end of text) can provide reference points for comparisons of education resources.

Policy makers must also balance the importance of improving the quality of educational services with the desirability of expanding access to educational opportunities, notably at the tertiary level. A comparative review of trends in expenditure on educational institutions per student shows that in many OECD countries the expansion of enrolments, particularly in tertiary education, has not always been accompanied by increased investment.

In addition, decisions regarding the allocation of funds among the various levels of education are important. For example, some OECD countries emphasise broad access to higher education and some invest in near-universal education for children as young as three or four years old.

Evidence and explanations

What this indicator covers and what it does not cover

The indicator shows direct public and private expenditure on educational institutions in relation to the number of full-time equivalent students enrolled. Public subsidies for students' living expenses have been excluded to ensure international comparability of the data. Expenditure data for students in private educational institutions are not available for certain countries, and some other countries do not provide complete data on independent private institutions. Where this is the case, only the expenditure on public and government-dependent private institutions has been taken into account. Note that variations in expenditure on educational institutions per student may reflect not only variations in the material resources provided to students (*e.g.* variations in the ratio of students to teaching staff) but also variations in relative salary and price levels. At the primary and secondary levels, educational expenditure is dominated by spending on instructional services; at the tertiary level, other services – particularly those related to R&D activities or ancillary services – can account for a significant proportion.

Expenditure on educational institutions per student in equivalent USD

Data on annual expenditure per student from primary through tertiary education provide a way to track the financial investment made in each student. OECD countries as a whole spend, on average, USD 8 857 annually per student enrolled in primary through tertiary education. In 2006, in 11 of 33 OECD and partner countries, spending on educational institutions ranged between USD 7 000 and USD 9 000 per student. It ranged from USD 4 000 per student or less in Mexico, Poland, the Slovak Republic and Turkey and the partner countries Brazil, Chile and the Russian Federation, to more than USD 10 000 per student in Austria, Denmark, Norway,

Switzerland and the United States (Table B1.1a). The drivers of expenditure per student vary among countries (for more details see Indicator B7). Among the five countries with the highest expenditure on educational institutions per student, Switzerland has the highest teachers' salaries at the secondary level (see Indicator D3), the United States has the highest level of private expenditure at the tertiary level and Austria, Denmark and Norway are among the countries with the lowest student to teaching staff ratios (see Indicator D2).

Even if overall spending per student is similar across some OECD countries, the ways in which resources are allocated among the different levels of education vary widely. OECD countries as a whole spend USD 6 517 per student at the primary level, USD 7 966 at the secondary level and USD 15 791 at the tertiary level. At the tertiary level, the totals are affected by high expenditure in a few large OECD countries, most notably Canada and the United States. Spending on educational institutions per student in a typical OECD country (as represented by the simple mean across all OECD countries) amounts to USD 6 437 at the primary level, USD 8 006 at the secondary level and USD 12 336 at the tertiary level (Table B1.1a and Chart B1.2).

These averages mask a broad range of expenditure on educational institutions per student by OECD and partner countries. At the primary and secondary levels, expenditure on educational institutions varies by a factor of 12, ranging from USD 1 130 per student in Turkey to USD 13 676 in Luxembourg in primary education and from USD 1 538 in the partner country Brazil to USD 18 144 in Luxembourg in secondary education. Expenditure on educational institutions per tertiary student ranges from USD 4 063 in the partner country Estonia to more than USD 20 000 in Switzerland and the United States (Table B1.1a and Chart B1.2).

These comparisons are based on purchasing power parities for GDP, not on market exchange rates. They therefore reflect the amount of a national currency required to produce the same basket of goods and services in a given country as that produced by the USD in the United States.

Expenditure on educational core services per student

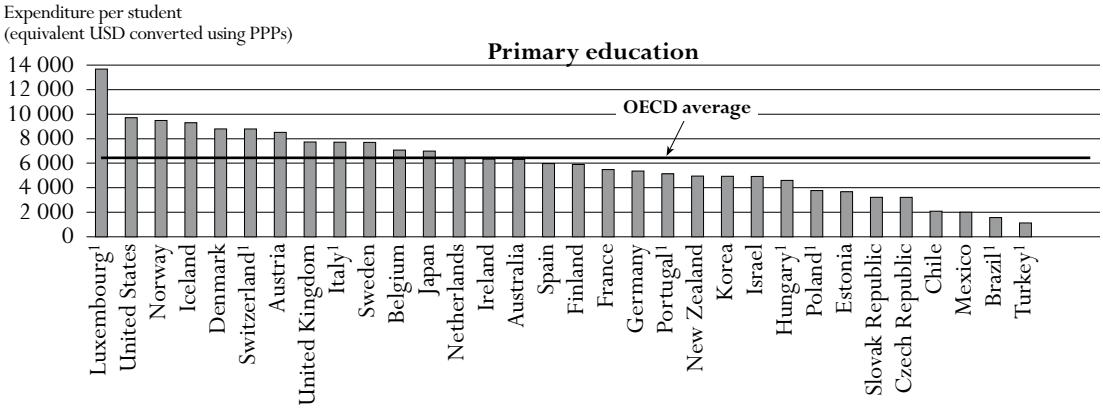
On average, OECD countries for which data are available spend USD 6 219 on core educational services at primary, secondary and post-secondary non-tertiary levels. This corresponds to 85% of the total expenditure on educational institutions per student at these levels. In 14 out of the 34 OECD and partner countries for which data are available, ancillary services provided by primary, secondary and post-secondary non-tertiary institutions account for less than 5% of the total expenditure per student. The proportion exceeds 10% of the total expenditure in Finland, France, Korea, the Slovak Republic, Sweden and the United Kingdom.

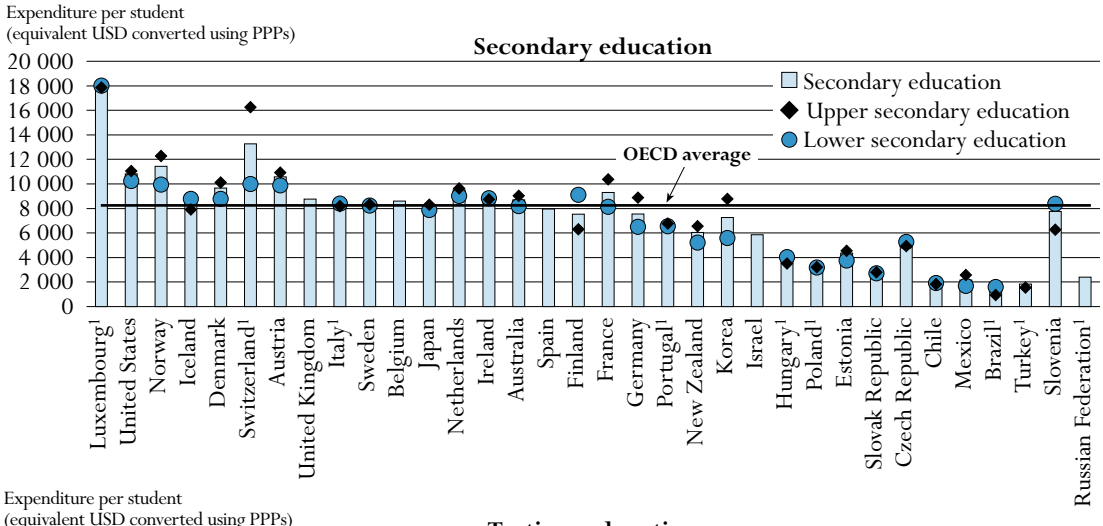
Greater differences are observed in the proportion of total expenditure on educational institutions per student devoted to core services at the tertiary level partly because R&D expenditure can account for a significant proportion of educational spending. The OECD countries in which most R&D is performed within tertiary education institutions tend to report higher expenditure per student than those in which a large proportion of R&D is performed in other public institutions or in industry. Excluding R&D activities and ancillary services, expenditure on core educational services in tertiary institutions is, on average, USD 8 418 per student and ranges from USD 5 000 or less in Hungary, Poland, the Slovak Republic and Turkey, and the partner country Estonia to more than USD 10 000 in Austria, Canada, Norway, Switzerland, the United States and the partner country Brazil (Table B1.2).

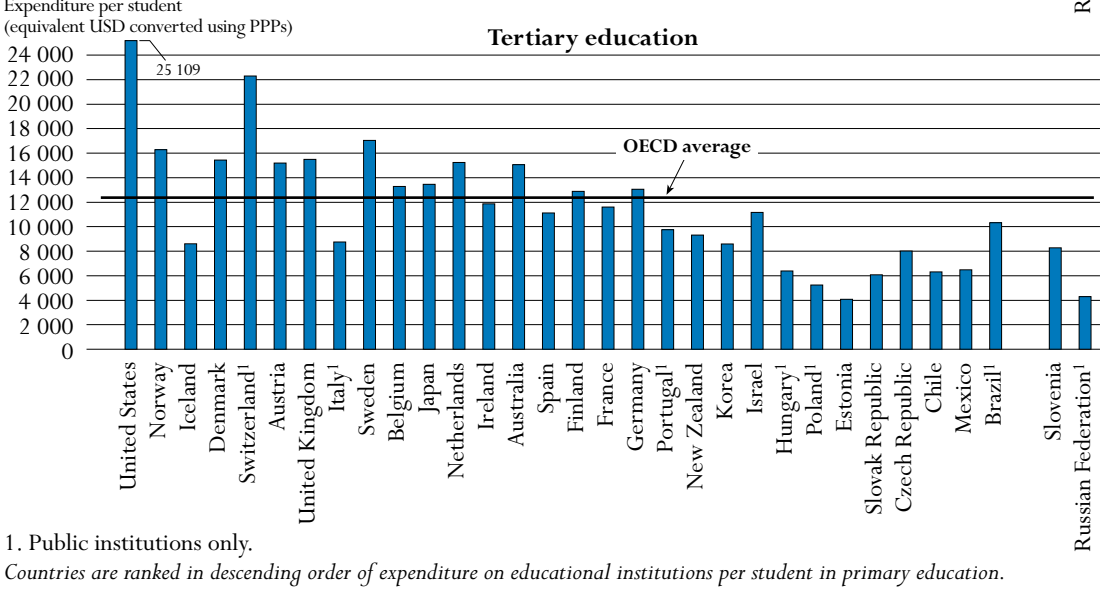
B1

Chart B1.2. Annual expenditure on educational institutions per student for all services, by level of education (2006)

In equivalent USD converted using PPPs, based on full-time equivalents







1. Public institutions only.

Countries are ranked in descending order of expenditure on educational institutions per student in primary education.

Source: OECD. Table B1.1a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664234230084

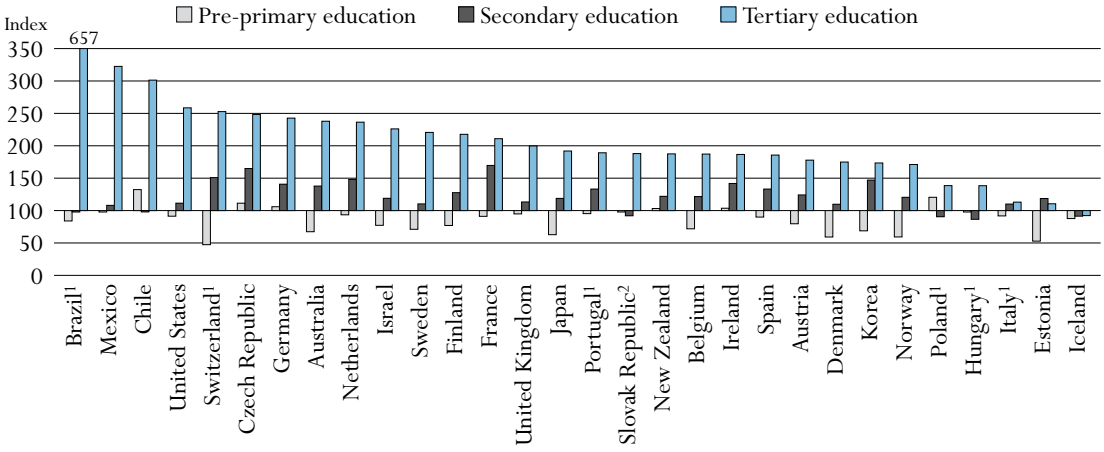
On average, expenditure on R&D and ancillary services at the tertiary level is 30% and 4% respectively of all tertiary expenditure on educational institutions per student. In 12 out of 20 OECD and partner countries for which data on R&D and ancillary services are available separately from total expenditure – Australia, Belgium, Canada, Finland, France, Germany, Italy, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom – expenditure on R&D and ancillary services in tertiary institutions is about one third or more of total tertiary expenditure on educational institutions per student. On a per student basis this can translate into significant amounts: in Australia, Belgium, Canada, Germany, the Netherlands, Norway, Sweden, Switzerland, the United Kingdom and the United States, expenditure for R&D and ancillary services amounts to more than USD 5 000 per student (Table B1.2).

Expenditure on educational institutions per student at different levels of education for all services

Throughout OECD countries expenditure on educational institutions per student rises sharply from primary to tertiary education. The amount and pattern of expenditure is largely a reflection of the location and mode of educational provision. Education still essentially takes place in traditional settings with (generally) similar organisation, curriculum, teaching style and management. These shared features have tended to result in similar patterns of unit expenditure at the primary through post-secondary non-tertiary levels. During the last decade, however, greater use of private funds at the tertiary level has increased the difference between the amount and pattern of expenditure at this level and as compared to other levels of education (see Indicator B3).

Chart B1.3. Expenditure on educational institutions per student at various levels of education for all services relative to primary education (2006)

Primary education = 100



Note: A ratio of 300 for tertiary education means that expenditure on educational institutions per tertiary student is three times the expenditure on educational institutions per primary student.
A ratio of 50 for pre-primary education means that expenditure on educational institutions per pre-primary student is half the expenditure on educational institutions per primary student.
1. Public institutions only.
2. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
Countries are ranked in descending order of expenditure on educational institutions per student in tertiary education relative to primary education.
Source: OECD. Table B1.1a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664234230084

Comparisons of the distribution of expenditure at different levels of education highlight the relative emphasis placed on these levels as well as the relative costs of provision. Expenditure on educational institutions per student rises with the level of education in almost all OECD and partner countries, but the relative size of the differentials varies markedly (Table B1.1a and Chart B1.3). At the secondary level, the expenditure is, on average, 1.2 times more than at the primary level and exceeds 1.5 in the Czech Republic, France, Switzerland and Turkey. In Switzerland, this increase is mainly due to changes in teachers' salaries. In the other three countries, it is due to an increase in the number of instructional hours for students and a significant decrease in the number of teachers' teaching hours between primary and secondary education, as compared to the OECD average (see Indicators B7, D1, D3 and D4).

OECD countries spend, on average, two times more on educational institutions per student at the tertiary level than at the primary level, but spending patterns vary widely mainly because education policies vary more among countries at the tertiary level (see Indicator B5). For example, Hungary, Iceland, Italy, Poland and the partner country Estonia spend less than 1.5 times more on a tertiary student than on a primary student, but Mexico and the partner countries Brazil and Chile spend more than 3 times as much (Table B1.1a and Chart B1.3).

Expenditure on educational institutions per student over the theoretical duration of primary and secondary education

OECD countries spend on average USD 93 775 per student over the theoretical duration of primary and secondary studies. Although this theoretical duration is quite similar – between 12 and 13 years in 30 out of 36 OECD and partner countries – cumulative expenditure on educational institutions per student varies considerably, ranging from less than USD 40 000 in Mexico and the Slovak Republic, and the partner countries Brazil, Chile and the Russian Federation, to USD 100 000 or more in Austria, Denmark, Iceland, Ireland, Italy, Luxembourg, Norway, Switzerland, the United Kingdom and the United States (Table B1.3a and Chart B1.4).

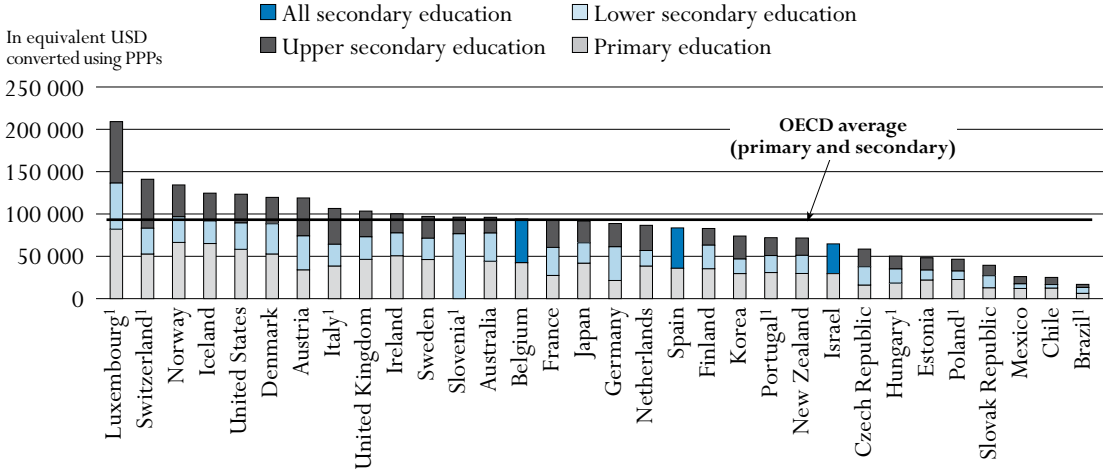
Expenditure on educational institutions per student over the average duration of tertiary studies

Both the typical duration and the intensity of tertiary education vary among OECD countries. Therefore, the differences among countries in annual expenditure on educational services per student (as shown in Chart B1.2) do not necessarily reflect the differences in the total cost of educating the typical tertiary student. Today's students can choose from a range of institutions and enrolment options to find the best fit for their degree objectives, abilities and personal interests. Many enrol on a part-time basis while others combine work and study. Students may attend more than one institution before graduating. These enrolment patterns can affect the interpretation of expenditure on educational institutions per student.

In particular, if the typical duration of tertiary studies is long, comparatively low annual expenditure on educational institutions per student can result in comparatively high overall costs for tertiary education. Chart B1.5 shows the average expenditure per student throughout the course of tertiary studies. The figures account for all students for whom expenditure is incurred, including those who do not finish their studies. Although the calculations are based on a number of simplified assumptions and therefore should be treated with caution (see Annex 3 at *www.oecd.org/edu/eag2009*), there are some striking shifts between annual and aggregate expenditure in the ranking of OECD and partner countries.

Chart B1.4. Cumulative expenditure on educational institutions per student over the theoretical duration of primary and secondary studies (2006)

Annual expenditure on educational institutions per student multiplied by the theoretical duration of studies, in equivalent USD converted using PPPs



1. Public institutions only.

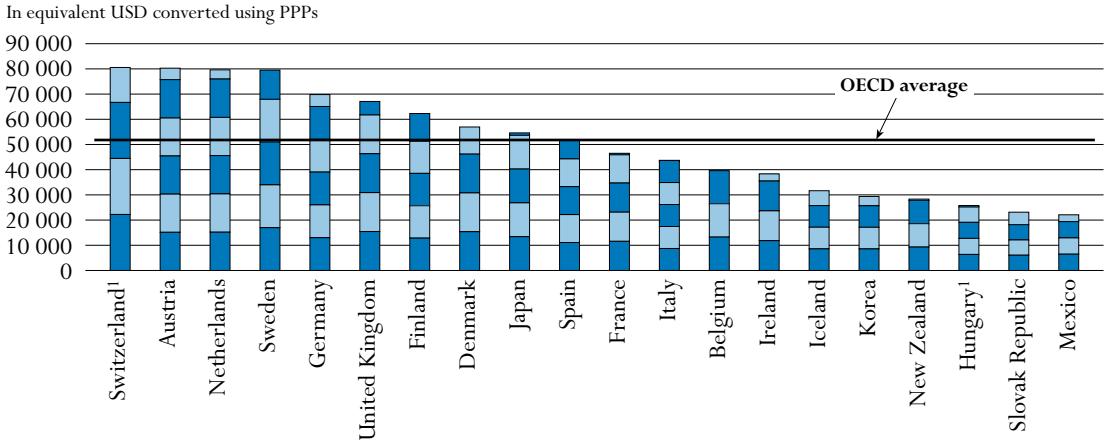
Countries are ranked in descending order of the total expenditure on educational institutions per student over the theoretical duration of primary and secondary studies.

Source: OECD. Table B1.3a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664234230084

Chart B1.5. Cumulative expenditure on educational institutions per student over the average duration of tertiary studies (2006)

Annual expenditure on educational institutions per student multiplied by the average duration of studies, in equivalent USD converted using PPPs



Note: Each segment of the bar represents the annual expenditure on educational institutions per student.The number of segments represents the average number of years a student remains in tertiary education.

1. Public institutions only.

Countries are ranked in descending order of the total expenditure on educational institutions per student over the average duration of tertiary studies.

Source: OECD. Table B1.3b. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664234230084

For example, annual spending per tertiary student in Japan is about the same as in Germany, at USD 13 418 and USD 13 016, respectively (Table B1.1a). But because of differences in the tertiary degree structure (see Indicator A3), the average duration of tertiary studies is slightly more than one year longer in Germany than in Japan (5.4 and 4.1 years, respectively). As a consequence, the cumulative expenditure for each tertiary student is more than USD 15 000 lower in Japan than in Germany – USD 54 611 compared with USD 69 814 (Chart B1.5 and Table B1.3b).

The total cost of tertiary-type A studies in Switzerland (USD 128 647) is more than twice the amount reported by other countries, with the exception of Austria, Germany, Japan and the Netherlands (Table B1.3b). These figures must, of course, be interpreted in light of differences in national degree structures as well as possible differences in the academic level of the qualifications of students leaving university. While trends are similar in tertiary-type B studies, their total cost tends to be much lower than those of tertiary type-A programmes, largely because of their shorter duration.

Expenditure on educational institutions per student in relation to GDP per capita

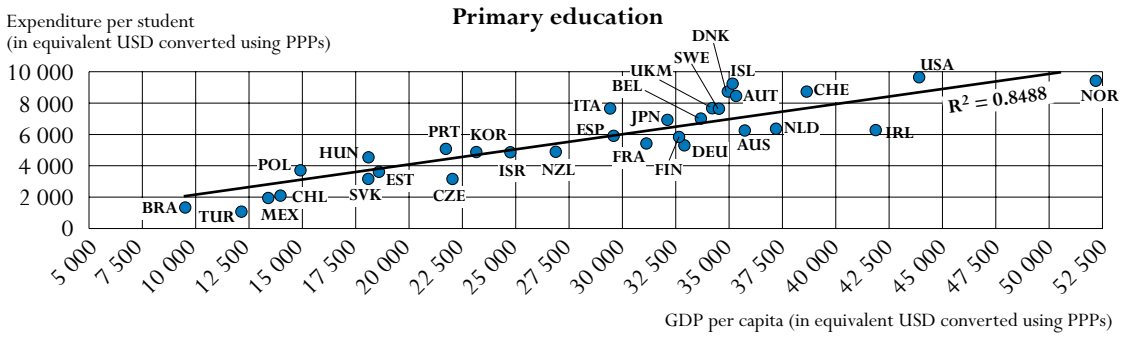
Expenditure on educational institutions per student relative to GDP per capita is a unit spending measure that takes OECD countries' relative wealth into account. Since education is universal at lower levels, spending on educational institutions per student at the lower levels relative to GDP per capita can be interpreted as the resources spent on the school-age population relative to a country's ability to pay. At higher levels of education, this measure is affected by a combination of national income, spending and enrolment rates. At the tertiary level, for example, OECD countries can rank relatively high on this measure if a large proportion of their wealth is spent on educating a relatively small number of students.

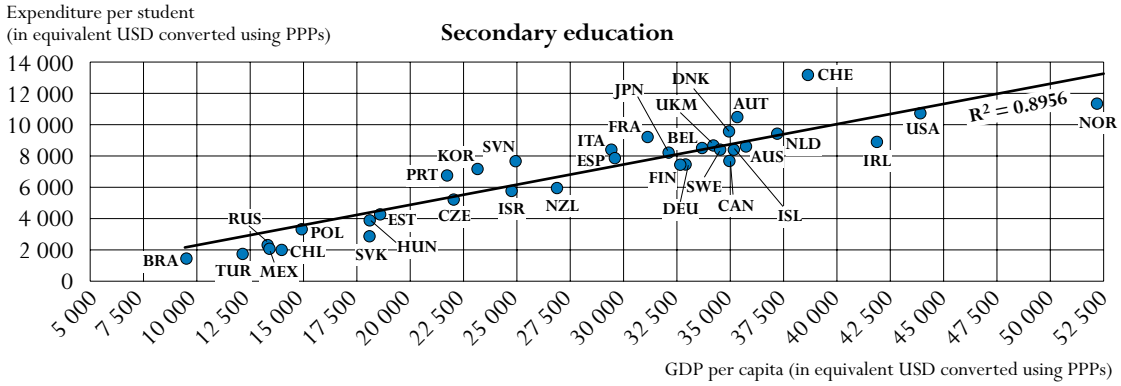
Expenditure on educational institutions per student averages 20% of GDP per capita at the primary level, 25% at the secondary level and 40% at the tertiary level (Table B1.4). Countries with low levels of expenditure on educational institutions per student may nevertheless show distributions of investment relative to GDP per capita which are similar to those of countries with a high level of spending per student. For example, Korea and Portugal – countries with expenditure on educational institutions per student at primary, secondary and post-secondary non-tertiary level of education and GDP per capita below the OECD average – spend more per student relative to GDP per capita than the OECD average. Similarly, Switzerland and the United States spend more than 50% of GDP per capita on each tertiary student, among the highest proportions after Brazil. Brazil has the highest proportion, spending 109% of GDP per capita on each tertiary student, but tertiary students represent only 3% of the students enrolled in all levels of education combined (Table B1.2 and Table B1.6).

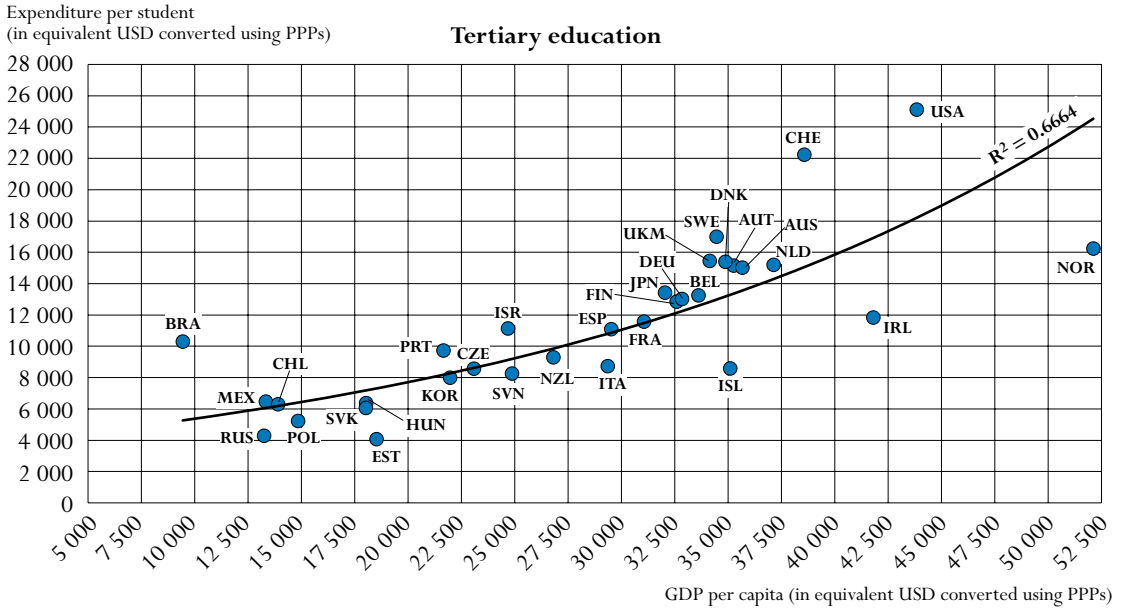
The relationship between GDP per capita and expenditure on educational institutions per student is a complex one. As one would expect, there is a clear positive relationship between spending on educational institutions per student and GDP per capita at both primary and secondary levels of education; poorer OECD countries tend to spend less per student than richer ones. Although the relationship is generally positive at these levels, there are variations even for countries with similar levels of GDP per capita, especially among those in which it exceeds USD 30 000. Australia and Austria, for example, have similar levels of GDP per capita but spend very different proportions of GDP per capita at the primary and secondary levels. In Australia, the proportions are 18% and 24% at the two levels, respectively, and are near the OECD average (20% and 25%). By contrast, Austria's are 24% and 30%, respectively, and are among the highest (Table B1.4 and Chart B1.6).

Chart B1.6. Annual expenditure on educational institutions per student relative to GDP per capita (2006)

In equivalent USD converted using PPPs, by level of education







Please refer to the Reader's Guide for the list of country codes used in this chart.

Source: OECD. Table B1.1a, Table B1.4 and Annex 2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664234230084

There is more variation in spending on educational institutions per student at the tertiary level and the relationship between countries' relative wealth and their expenditure levels is more variable, as well. Iceland and Switzerland, for example, have similar levels of GDP per capita but very different levels of spending on tertiary education (Table B1.4 and Chart B1.6).

Change in expenditure on educational institutions per student between 1995, 2000 and 2006

Expenditure on educational institutions tends to rise over time in real terms, as teachers' salaries (the main component of costs) rise in line with salary levels across country populations. The size of the school-age population influences both enrolment rates and the amount of resources and organisational effort a country must invest in its education system. The larger the size of this population, the greater the potential demand for educational services. Table B1.5 and Chart B1.7 show the effects of changes in enrolments and total expenditure between 1995, 2000 and 2006 in indices and at constant prices.

Expenditure on educational institutions per primary, secondary and post-secondary non-tertiary student increased in every country, on average, by 40% between 1995 and 2006 during a period of relatively stable student enrolment at these levels. The rate of increase was quite similar over the first and second halves of this time period; only the Czech Republic, Norway and Switzerland showed a decrease between 1995 and 2000, followed by an increase between 2000 and 2006 (Table B1.5).

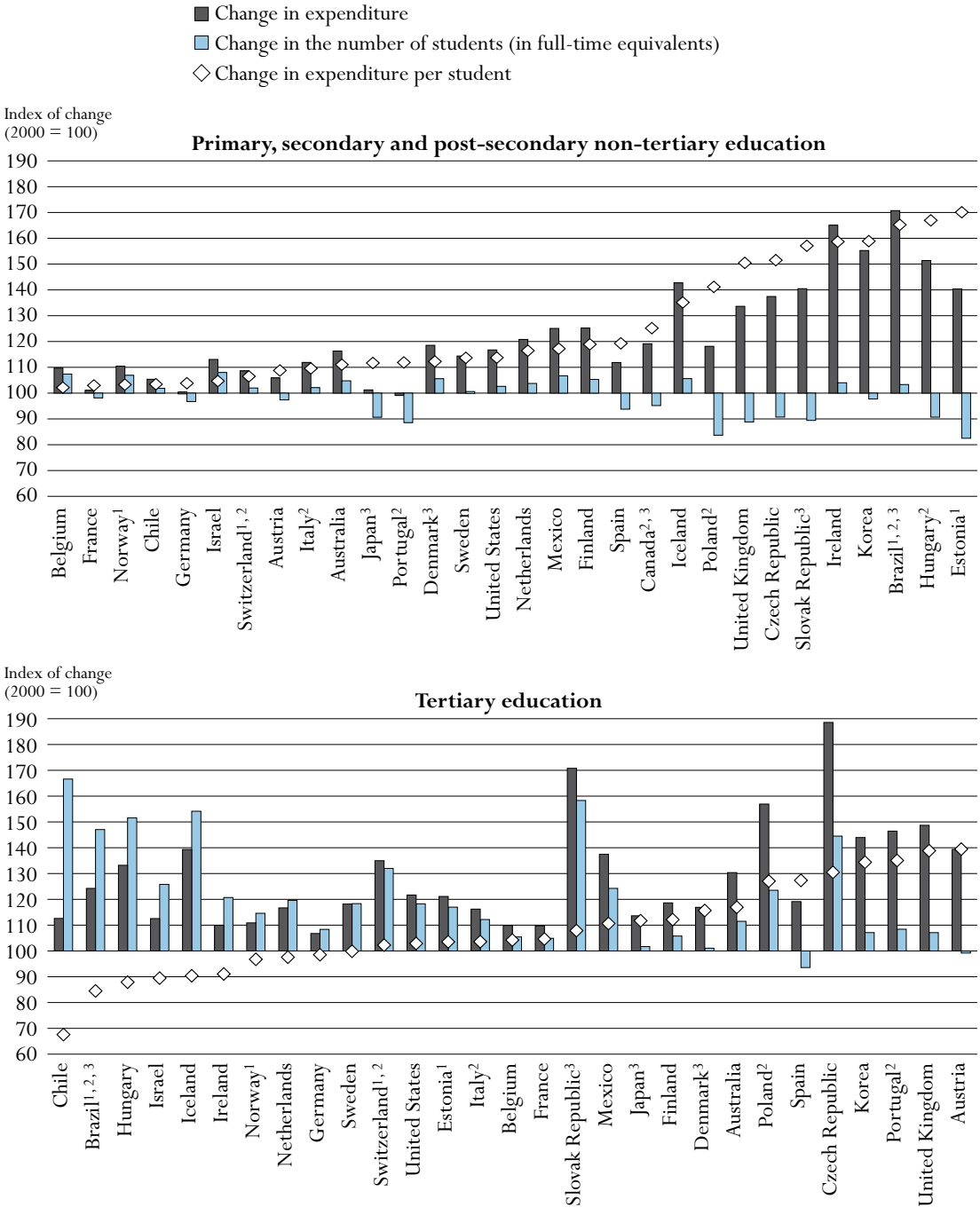
Between 2000 and 2006, in 22 out of the 30 OECD and partner countries for which data are available, expenditure on educational institutions per primary, secondary and post-secondary non-tertiary student increased by at least 10% and exceeded 30% in the Czech Republic, Hungary, Iceland, Ireland, Korea, Poland, the Slovak Republic, the United Kingdom and the partner countries Brazil and Estonia. Even with these increases, in 2006 in all of these countries except Iceland, Ireland and the United Kingdom, levels of expenditure on educational institutions per primary, secondary and post-secondary non-tertiary student were still significantly below the OECD average. In Belgium, France, Germany, Norway and the partner countries Chile and Israel (Table B1.5 and Chart B1.7), expenditure on educational institutions per primary, secondary and post-secondary non-tertiary student increased only by 5% or less between 2000 and 2006.

Changes in enrolments do not seem to have been the main factor behind changes in expenditure on educational institutions per primary, secondary and post-secondary non-tertiary student in the majority of OECD and partner countries. However, in the Czech Republic, Hungary, Japan, Poland, Portugal, the Slovak Republic, Spain and the United Kingdom and the partner country Estonia, a more than 5% decrease in enrolments coincided with significant increases in spending on educational institutions per student between 2000 and 2006. In Japan, Portugal and Spain the decline in enrolments was concurrent with a slight rise in expenditure on educational institutions in primary, secondary and post-secondary non-tertiary education; in the other countries, it came at the same time as a sharp increase in spending (Table B1.5 and Chart B1.7).

The pattern is different at the tertiary level, where spending per student between 1995 and 2006 fell in some cases, as expenditure did not keep up with expanding student numbers.

Chart B1.7. Changes in the number of students and changes in expenditure on educational institutions per student, by level of education (2000, 2006)

Index of change between 2000 and 2006 (2000 = 100, 2006 constant prices)



1. Public expenditure only.
2. Public institutions only.
3. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.

Countries are ranked in ascending order of change in expenditure on educational institutions per student.

Source: OECD. Table B1.5. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664234230084

Expenditure on educational institutions per tertiary student remained stable over the 1995 to 2000 period but then increased by 11% on average in OECD countries from 2000 to 2006, as governments invested massively in response to the expansion of tertiary education. The Czech Republic, Korea, Poland, Portugal, the Slovak Republic and the United Kingdom followed this pattern and increased their expenditure on educational institutions by more than 40% between 2000 and 2006. However, the increase in per student expenditure between 2000 and 2006 did not completely counterbalance the decrease between 1995 and 2000 in the Czech Republic and the Slovak Republic. Only in Hungary, Norway and the partner country Israel was there a decrease in expenditure on educational institutions per tertiary student between the first and second half of this time period. However, this is due for Norway to the use of the GDP deflator, which was extremely affected by oil price changes (Table B1.5).

Between 2000 and 2006, of the 29 OECD and partner countries for which data are available, Germany, Hungary, Iceland, Ireland, the Netherlands, Norway and Sweden and the partner countries Brazil, Chile and Israel recorded a decrease in expenditure on tertiary education per student. In all of these countries except Germany, this decline was mainly the result of a rapid increase (10% or more) in the number of tertiary students (Chart B1.7). Five of the eleven OECD and partner countries in which the number of students enrolled in tertiary education increased by over 20% between 2000 and 2006 (the Czech Republic, Mexico, Poland, the Slovak Republic and Switzerland) increased their expenditure on tertiary education over the period by at least the same proportion. The others – Hungary, Iceland, Ireland and the partner countries Brazil, Chile and Israel – did not. Austria and Spain were the only countries in which the number of tertiary students decreased between 2000 and 2006, and their changes in expenditure per student between 2000 and 2006 were above the OECD average of 11% (Table B1.5 and Chart B1.7).

Definitions and methodologies

Data refer to the financial year 2006 and are based on the UOE data collection on education statistics administered by the OECD in 2008 (for details see Annex 3 at *www.oecd.org/edu/eag2009*).

Expenditure on educational institutions per student at a particular level of education is calculated by dividing the total expenditure on educational institutions at that level by the corresponding full-time equivalent enrolment. Only educational institutions and programmes for which both enrolment and expenditure data are available are taken into account. Expenditure in national currency is converted into equivalent USD by dividing the national currency figure by the purchasing power parity (PPP) index for GDP. The PPP exchange rate is used because the market exchange rate is affected by many factors (interest rates, trade policies, expectations of economic growth, etc.) that have little to do with current relative domestic purchasing power in different OECD countries (see Annex 2 for further details).

The OECD average is calculated as the simple average over all OECD countries for which data are available. The OECD total reflects the value of the indicator if the OECD region is considered as a whole (see the Reader's Guide for details).

Table B1.5 shows the changes in expenditure on educational institutions per student between the financial years 1995, 2000 and 2006. OECD countries were asked to collect the 1995 and 2000 data according to the definitions and the coverage of UOE 2007 data collection. All expenditure data, as well as the GDP for 1995 and 2000, are adjusted to 2006 prices using the GDP price deflator.

Expenditure on educational institutions per student relative to GDP per capita is calculated by expressing expenditure on educational institutions per student in units of national currency as a percentage of GDP per capita, also in national currency. In cases where the educational expenditure data and the GDP data pertain to different reference periods, the expenditure data are adjusted to the same reference period as the GDP data, using inflation rates for the OECD country in question (see Annex 2).

Cumulative expenditure over the average duration of tertiary studies (Table B1.3b) is calculated by multiplying current annual expenditure by the typical duration of tertiary studies. The methodology used to estimate the typical duration of tertiary studies is described in Annex 3 (*www.oecd.org/edu/eag2009*). For estimates of the duration of tertiary education, data are based on a special survey carried out in OECD countries in 2006.

The ranking of OECD countries by annual expenditure on educational services per student is affected by differences in how countries define full-time, part-time and full-time equivalent enrolment. Some OECD countries count every participant at the tertiary level as a full-time student while others determine a student's intensity of participation by the credits which he or she obtains for successful completion of specific course units during a specified reference period. OECD countries that can accurately account for part-time enrolment have higher apparent expenditure on educational institutions per full-time equivalent student than OECD countries that cannot differentiate among different modes of student attendance.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/664234230084

- ***Table B1.1b. Annual expenditure on educational institutions per student for core services (2006)***
- ***Table B1.6. Distribution of expenditure (as a percentage) on educational institutions compared to the number of students enrolled at each level of education (2006)***
- ***Table B1.7. Annual expenditure on educational institutions per student for all services, by type of programme (2006)***

B1

Table B1.1a.

Annual expenditure on educational institutions per student for all services (2006)

In equivalent USD converted using PPPs for GDP, by level of education, based on full-time equivalents

	Pre-primary education (for children 3 years and older)	Primary education	Secondary education			Post-secondary non-tertiary education	Tertiary education (including R&D activities)			All tertiary education excluding R&D activities	Primary to tertiary education
			Lower secondary education	Upper secondary education	All secondary education		Tertiary-type B education	Tertiary-type A & advanced research programmes	All tertiary education		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD countries											
Australia	4 252	6 311	8 319	9 315	8 700	8 113	8 828	16 070	15 016	9 982	**8 678**
Austria	6 783	8 516	10 011	11 205	10 577	x(4)	13 006	15 284	15 148	10 541	**10 895**
Belgium	5 082	7 072	x(5)	x(5)	8 601	x(5)	x(9)	x(9)	13 244	8 496	**8 827**
Canada[1, 2]	x(5)	x(5)	x(5)	x(5)	7 774	x(7)	m	22 810	m	m	**m**
Czech Republic	3 586	3 217	5 399	5 217	5 307	1 943	3 333	8 437	7 989	6 464	**5 174**
Denmark	5 208	8 798	8 909	10 400	9 662	x(4,9)	x(9)	x(9)	15 391	m	**10 395**
Finland	4 544	5 899	9 241	6 585	7 533	x(5)	n	12 845	12 845	7 951	**8 048**
France	4 995	5 482	8 265	10 655	9 303	m	9 714	12 180	11 568	8 016	**8 428**
Germany	5 683	5 362	6 632	9 163	7 548	8 559	7 352	13 926	13 016	7 996	**7 925**
Greece	m	m	m	m	m	m	m	m	m	m	m
Hungary[2]	4 516	4 599	4 161	3 793	3 978	4 778	4 272	6 469	6 367	4 843	**4 588**
Iceland	8 154	9 299	8 910	8 196	8 493	x(5)	x(9)	x(9)	8 579	m	**8 823**
Ireland	6 569	6 337	8 964	9 024	8 991	6 212	x(9)	x(9)	11 832	8 407	**8 092**
Italy[2]	7 083	7 716	8 527	8 474	8 495	m	6 920	8 738	8 725	5 628	**8 263**
Japan	4 389	6 989	8 004	8 589	8 305	x(4,9)	8 634	15 022	13 418	m	**8 872**
Korea	3 393	4 935	5 719	9 060	7 261	a	4 653	10 844	8 564	7 517	**6 811**
Luxembourg[2]	x(2)	13 676	18 144	18 144	18 144	m	m	m	m	m	m
Mexico	1 978	2 003	1 814	2 856	2 165	a	x(9)	x(9)	6 462	5 393	**2 460**
Netherlands	6 006	6 425	9 149	9 918	9 516	10 238	n	15 196	15 196	9 717	**9 330**
New Zealand	5 113	4 952	5 347	6 838	6 043	5 734	6 533	10 101	9 288	8 010	**6 222**
Norway	5 625	9 486	10 075	12 559	11 435	x(5)	x(9)	x(9)	16 235	10 730	**11 487**
Poland[2]	4 545	3 770	3 315	3 498	3 411	3 586	x(9)	x(9)	5 224	4 468	**3 868**
Portugal[2]	4 897	5 138	6 677	7 052	6 846	m	x(9)	x(9)	9 724	7 208	**6 624**
Slovak Republic	3 156	3 221	2 841	3 081	2 963	x(4)	x(4)	6 056	6 056	5 324	**3 485**
Spain	5 372	5 970	x(5)	x(5)	7 955	a	9 798	11 342	11 087	7 845	**7 819**
Sweden	5 475	7 699	8 365	8 610	8 496	4 991	x(9)	x(9)	16 991	8 855	**9 523**
Switzerland[2]	4 166	8 793	10 121	16 540	13 268	10 129	4 101	23 593	22 230	12 783	**12 667**
Turkey[2]	m	1 130	a	1 834	1 834	a	x(9)	x(9)	m	4 648	**1 614**
United Kingdom	7 335	7 732	8 868	8 693	8 763	x(4)	x(9)	x(9)	15 447	9 714	**9 309**
United States	8 867	9 709	10 369	11 334	10 821	m	x(9)	x(9)	25 109	22 384	**13 447**
OECD average	***5 260***	***6 437***	***7 544***	***8 486***	***8 006***	***4 592***	***~***	***~***	***12 336***	***8 455***	***7 840***
OECD total	***5 553***	***6 517***	***~***	***~***	***7 966***	***~***	***~***	***~***	***15 791***	***13 163***	***8 857***
EU19 average	***5 343***	***6 479***	***7 967***	***8 344***	***8 116***	***5 039***	***~***	***~***	***11 520***	***7 592***	***7 682***
Partner countries											
Brazil[2]	1 315	1 566	1 726	1 225	1 538	a	x(9)	x(9)	10 294	10 067	**1 811**
Chile[3]	2 764	2 088	2 051	2 111	2 090	a	3 562	8 130	6 292	m	**2 849**
Estonia	1 941	3 675	3 884	4 831	4 360	5 426	3 301	4 462	4 063	m	**4 126**
Israel	3 803	4 923	x(5)	x(5)	5 858	4 850	8 780	11 680	11 132	m	**6 293**
Russian Federation[2]	m	x(5)	x(5)	x(5)	2 399	x(5)	2 790	4 838	4 279	3 948	**2 761**
Slovenia	7 209	x(3)	8 510	6 550	7 759	x(4)	x(9)	x(9)	8 251	6 762	**7 869**

1. Year of reference 2005.
2. Public institutions only (for Canada, in tertiary education only. For Italy, except in tertiary education).
3. Year of reference 2007.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table B1.2.

Annual expenditure per student on core services, ancillary services and R&D (2006)

In equivalent USD converted using PPPs for GDP, by level of education and type of service, based on full-time equivalents

		Primary, secondary and post-secondary non-tertiary education			Tertiary education			
		Educational core services	Ancillary services (transport, meals, housing provided by institutions)	Total	Educational core services	Ancillary services (transport, meals, housing provided by institutions)	R & D	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD countries	**Australia**	7 173	286	**7 459**	9 321	661	5 034	**15 016**
	Austria	9 466	444	**9 910**	10 454	88	4 606	**15 148**
	Belgium	7 694	286	**7 980**	8 153	343	4 748	**13 244**
	Canada[1, 2, 3]	7 343	431	**7 774**	15 858	1 517	5 434	**22 810**
	Czech Republic	4 179	353	**4 532**	6 376	88	1 524	**7 989**
	Denmark[1]	9 270	a	**9 270**	x(7)	a	x(7)	**15 391**
	Finland	6 148	743	**6 891**	7 951	n	4 894	**12 845**
	France	6 719	994	**7 712**	7 349	667	3 552	**11 568**
	Germany	6 818	167	**6 985**	7 339	658	5 020	**13 016**
	Greece	m	m	**m**	m	m	m	m
	Hungary[3]	3 826	363	**4 188**	4 579	264	1 524	**6 367**
	Iceland	x(3)	x(3)	**8 877**	x(7)	x(7)	x(7)	**8 579**
	Ireland	7 125	194	**7 318**	8 407	x(7)	3 425	**11 832**
	Italy[3, 4]	7 917	288	**8 204**	5 537	256	2 932	**8 725**
	Japan[1]	x(3)	x(3)	**7 661**	x(7)	x(7)	x(7)	**13 418**
	Korea	5 465	624	**6 089**	7 476	41	1 047	**8 564**
	Luxembourg[1, 3]	x(3)	x(3)	**15 440**	m	m	m	m
	Mexico	2 072	m	**2 072**	5 393	m	1 069	**6 462**
	Netherlands	8 109	n	**8 109**	9 717	n	5 478	**15 196**
	New Zealand	x(3)	x(3)	**5 589**	8 010	x(7)	1 278	**9 288**
	Norway	x(3)	x(3)	**10 448**	10 638	92	5 505	**16 235**
	Poland[3]	3 550	18	**3 568**	4 467	1	756	**5 224**
	Portugal[3]	5 928	39	**5 967**	7 208	x(7)	2 515	**9 724**
	Slovak Republic[1]	2 631	402	**3 032**	4 201	1 122	732	**6 056**
	Spain	6 732	284	**7 016**	7 820	m	3 242	**11 087**
	Sweden	7 296	827	**8 123**	8 855	n	8 136	**16 991**
	Switzerland[3]	x(3)	x(3)	**11 129**	12 783	x(4)	9 447	**22 230**
	Turkey[3]	1 249	36	**1 286**	4 648	x(4)	m	**4 648**
	United Kingdom	6 858	1 448	**8 306**	8 425	1 289	5 733	**15 447**
	United States	9 460	808	**10 267**	19 476	2 908	2 725	**25 109**
	OECD average	*6 219*	*411*	*7 283*	*8 418*	*526*	*3 765*	*12 336*
	EU19 average	*6 486*	*403*	*7 364*	*7 302*	*341*	*3 676*	*11 520*
Partner countries	**Brazil**[1, 3]	x(3)	x(3)	**1 550**	10 067	x(4)	227	**10 294**
	Chile[5]	1 951	138	**2 089**	x(7)	x(7)	x(7)	**6 292**
	Estonia	x(3)	x(3)	**4 147**	4 063	x(4)	m	**4 063**
	Israel	5 080	243	**5 322**	9 902	1 230	n	**11 132**
	Russian Federation[3]	x(3)	x(3)	**2 399**	x(7)	x(7)	331	**4 279**
	Slovenia	7 451	308	**7 759**	6 736	26	1 489	**8 251**

1. Some levels of education are included with others. Refer to «x» code in Table B1.1a for details.
2. Tertiary-type A only and year of reference 2005.
3. Public institutions only (for Canada, in tertiary education only. For Italy, except in tertiary education).
4. Exclude post-secondary non-tertiary education.
5. Year of reference 2007.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664234230084

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Table B1.3a.

Cumulative expenditure on educational institutions per student for all services over the theoretical duration of primary and secondary studies (2006)

In equivalent USD converted using PPPs for GDP, by level of education

	Average theoretical duration of primary and secondary studies (in years)				Cumulative expenditure per student over the theoretical duration of primary and secondary studies (in USD)				
	Primary education	Lower secondary	Upper secondary education	Total primary and secondary education	Primary education	Lower secondary	Upper secondary education	All secondary education	Total primary and secondary education
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries									
Australia	7.0	4.0	2.0	**13.0**	44 174	33 275	18 630	51 905	**96 079**
Austria	4.0	4.0	4.0	**12.0**	34 066	40 042	44 822	84 864	**118 930**
Belgium	6.0	2.0	4.0	**12.0**	42 434	x(8)	x(8)	51 605	**94 039**
Canada[1]	6.0	2.0	4.0	**12.0**	x(9)	x(9)	x(9)	x(9)	**93 288**
Czech Republic	5.0	4.0	4.0	**13.0**	16 087	21 595	20 867	42 462	**58 548**
Denmark	6.0	4.0	3.0	**13.0**	52 786	35 635	31 200	66 834	**119 621**
Finland	6.0	3.0	3.0	**12.0**	35 392	27 722	19 754	47 476	**82 868**
France	5.0	4.0	3.0	**12.0**	27 412	33 061	31 966	65 027	**92 439**
Germany	4.0	6.0	3.0	**13.0**	21 447	39 794	27 489	67 282	**88 729**
Greece	6.0	3.0	3.0	**12.0**	m	m	m	m	**m**
Hungary[2]	4.0	4.0	4.0	**12.0**	18 398	16 645	15 172	31 817	**50 215**
Iceland	7.0	3.0	4.0	**14.0**	65 095	26 730	32 786	59 515	**124 610**
Ireland	8.0	3.0	2.5	**13.5**	50 698	26 892	22 559	49 451	**100 149**
Italy[2]	5.0	3.0	5.0	**13.0**	38 580	25 582	42 369	67 951	**106 531**
Japan	6.0	3.0	3.0	**12.0**	41 937	24 012	25 767	49 779	**91 716**
Korea	6.0	3.0	3.0	**12.0**	29 612	17 156	27 181	44 337	**73 950**
Luxembourg[2]	6.0	3.0	4.0	**13.0**	82 055	54 431	72 575	127 006	**209 060**
Mexico	6.0	3.0	3.0	**12.0**	12 018	5 443	8 568	14 011	**26 029**
Netherlands	6.0	2.0	3.0	**11.0**	38 550	18 298	29 755	48 052	**86 603**
New Zealand	6.0	4.0	3.0	**13.0**	29 714	21 387	20 513	41 900	**71 614**
Norway	7.0	3.0	3.0	**13.0**	66 399	30 226	37 678	67 904	**134 303**
Poland[2]	6.0	3.0	4.0	**13.0**	22 620	9 946	13 991	23 937	**46 557**
Portugal[2]	6.0	3.0	3.0	**12.0**	30 828	20 032	21 157	41 189	**72 017**
Slovak Republic	4.0	5.0	4.0	**13.0**	12 885	14 204	12 324	26 528	**39 413**
Spain	6.0	4.0	2.0	**12.0**	35 821	x(8)	x(8)	47 731	**83 552**
Sweden	6.0	3.0	3.0	**12.0**	46 193	25 095	25 829	50 924	**97 116**
Switzerland[2]	6.0	3.0	3.5	**12.5**	52 759	30 363	57 890	88 253	**141 013**
Turkey[2]	8.0	a	3.0	**11.0**	m	a	m	m	**m**
United Kingdom	6.0	3.0	3.5	**12.5**	46 393	26 605	30 424	56 959	**103 352**
United States	6.0	3.0	3.0	**12.0**	58 251	31 107	34 003	65 110	**123 361**
OECD average	***5.9***	***3.2***	***3.3***	***12.4***	***38 985***	***~***	***~***	***54 808***	***93 775***
Partner countries									
Brazil[2]	4.0	4.0	3.0	**11.0**	6 265	6 905	3 675	10 580	**16 844**
Chile[3]	6.0	2.0	4.0	**12.0**	12 526	4 102	8 445	12 546	**25 072**
Estonia	6.0	3.0	3.0	**12.0**	22 050	11 652	14 493	26 145	**48 194**
Israel	6.0	3.0	3.0	**12.0**	29 535	x(8)	x(8)	35 148	**64 683**
Russian Federation[2]	4.0	5.0	2.0	**11.0**	x(9)	x(9)	x(9)	x(9)	**26 394**
Slovenia[2]	6.0	3.0	3.0	**12.0**	x(6)	76 588	19 651	96 239	**96 239**

1. Year of reference 2005.
2. Public institutions only.
3. Year of reference 2007.

Source: OECD. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table B1.3b.

Cumulative expenditure on educational institutions per student for all services over the average duration of tertiary studies (2006)

In equivalent USD converted using PPPs for GDP, by type of programme

OECD countries	Method[1]	Average duration of tertiary studies (in years)			Cumulative expenditure per student over the average duration of tertiary studies (in USD)		
		Tertiary-type B education	Tertiary-type A and advanced research programmes	All tertiary education	Tertiary-type B education	Tertiary-type A and advanced research programmes	All tertiary education
		(1)	(2)	(3)	(4)	(5)	(6)
Australia	CM	m	2.87	**m**	m	46 121	m
Austria	CM	2.78	5.60	**5.30**	36 156	85 590	**80 283**
Belgium	CM	2.41	3.67	**2.99**	x(6)	x(6)	**39 599**
Canada		m	m	m	m	m	m
Czech Republic		m	m	m	m	m	m
Denmark	AF	2.10	3.84	**3.70**	x(6)	x(6)	**56 946**
Finland	CM	a	4.85	**4.85**	a	62 298	**62 298**
France[2]	CM	3.00	4.74	**4.02**	29 143	57 734	**46 504**
Germany	CM	2.37	6.57	**5.36**	17 432	91 466	**69 814**
Greece	CM	5.00	5.26	**5.25**	m	m	m
Hungary[3]	CM	2.00	4.05	**4.05**	8 544	26 201	**25 786**
Iceland	CM	x(3)	x(3)	**3.69**	x(6)	x(6)	**31 655**
Ireland	CM	2.21	4.02	**3.24**	x(6)	x(6)	**38 334**
Italy	AF	m	5.14	**5.01**	m	44 916	**43 711**
Japan	CM	2.11	4.51	**4.07**	18 218	67 750	**54 611**
Korea	CM	2.07	4.22	**3.43**	9 631	45 762	**29 374**
Luxembourg		m	m	m	m	m	m
Mexico	AF	x(3)	3.42	**3.42**	x(6)	x(6)	**22 100**
Netherlands	CM	a	5.24	**5.24**	a	79 625	**79 625**
New Zealand	CM	1.87	3.68	**3.05**	12 216	37 171	**28 327**
Norway		m	m	m	m	m	m
Poland[3]	CM	m	3.68	m	m	m	m
Portugal		m	m	m	m	m	m
Slovak Republic	AF	2.47	3.90	**3.82**	m	22 555	**23 133**
Spain	CM	2.15	5.54	**4.66**	21 065	62 835	**51 665**
Sweden	CM	2.26	4.93	**4.68**	x(6)	x(6)	**79 517**
Switzerland[3]	CM	2.19	5.45	**3.62**	8 968	128 647	**80 568**
Turkey[3]	CM	2.73	2.37	**2.65**	x(6)	x(6)	m
United Kingdom[2]	CM	3.52	5.86	**4.34**	x(6)	x(6)	**67 082**
United States		m	m	m	m	m	m
OECD average		***2.28***	***4.50***	***4.11***	~	~	***50 547***

1. Either the Chain Method (CM) or an Approximation Formula (AF) was used to estimate the duration of tertiary studies.
2. Average duration of tertiary studies is estimated based on national data.
3. Public institutions only.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664234230084

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Table B1.4.

Annual expenditure on educational institutions per student for all services relative to GDP per capita (2006)

By level of education, based on full-time equivalents

		Pre-primary education (for children 3 years and older)	Primary education	Secondary education			Post-secondary non-tertiary education	Tertiary education (including R&D activities)			All tertiary education excluding R&D activities	Primary to tertiary education
				Lower secondary education	Upper secondary education	All secondary education		Tertiary-type B education	Tertiary-type A and advanced research programmes	All tertiary education		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD countries	**Australia**	m	18	23	26	24	23	25	45	42	28	**24**
	Austria	19	24	28	32	30	x(4)	37	43	43	30	**31**
	Belgium	15	21	x(5)	x(5)	26	x(5)	x(9)	x(9)	39	25	**26**
	Canada[1, 2]	x(5)	x(5)	x(5)	x(5)	21	x(7)	m	62	m	m	m
	Czech Republic	16	15	25	24	24	9	15	38	36	29	**24**
	Denmark	15	25	26	30	28	x(4,9)	x(9)	x(9)	44	m	**30**
	Finland	14	18	28	20	23	x(5)	n	39	39	24	**25**
	France	16	18	27	34	30	m	31	39	37	26	**27**
	Germany	17	16	20	28	23	26	22	42	40	24	**24**
	Greece	m	m	m	m	m	m	m	m	m	m	m
	Hungary[2]	25	26	23	21	22	27	24	36	35	27	**25**
	Iceland	23	26	25	23	24	x(5)	x(9)	x(9)	24	m	**25**
	Ireland	16	15	21	22	22	15	x(9)	x(9)	28	20	**19**
	Italy[2]	24	26	29	29	29	m	24	30	30	19	**28**
	Japan	14	22	25	27	26	x(4,9)	27	47	42	m	**28**
	Korea	15	21	25	39	31	a	20	47	37	33	**30**
	Luxembourg[2]	x(2)	18	24	24	24	x(5)	m	m	m	m	m
	Mexico	15	15	14	21	16	a	x(9)	x(9)	48	40	**18**
	Netherlands	16	17	25	27	26	28	a	41	41	26	**25**
	New Zealand	19	18	20	26	23	21	24	38	35	30	**23**
	Norway	11	18	19	24	22	x(5)	x(9)	x(9)	31	21	**22**
	Poland[2]	31	25	22	24	23	24	30	35	35	30	**26**
	Portugal[2]	23	24	31	33	32	m	x(9)	x(9)	45	33	**31**
	Slovak Republic	18	18	16	17	16	x(4)	x(4)	34	34	30	**19**
	Spain	18	20	x(5)	x(5)	27	a	33	38	38	27	**26**
	Sweden	16	22	24	25	25	14	x(9)	x(9)	49	26	**28**
	Switzerland[2]	11	23	26	43	34	26	11	61	58	33	**33**
	Turkey[2]	m	9	a	15	15	a	x(9)	x(9)	m	38	**13**
	United Kingdom	21	23	26	25	26	x(4)	x(9)	x(9)	45	28	**27**
	United States	20	22	24	26	25	m	x(9)	x(9)	57	51	**31**
	OECD average	***18***	***20***	***23***	***26***	***25***	***15***	***22***	***42***	***40***	***29***	***26***
	EU19 average	***18***	***19***	***22***	***26***	***24***	***11***	***24***	***42***	***38***	***29***	***24***
Partner countries	**Brazil[2]**	14	17	18	13	16	a	x(9)	x(9)	109	107	**19**
	Chile[3]	20	15	15	15	15	a	26	58	45	m	**20**
	Estonia	10	20	21	26	24	29	18	24	22	m	**22**
	Israel	15	20	x(5)	x(5)	24	20	36	47	45	m	**25**
	Russian Federation[2]	m	x(5)	x(5)	x(5)	18	x(5)	21	37	32	30	**21**
	Slovenia	29	x(3)	34	26	31	x(4)	x(9)	x(9)	33	27	**32**

1. Year of reference 2005.
2. Public institutions only (for Canada, in tertiary education only. For Italy, except in tertiary education).
3. Year of reference 2007.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table B1.5.

Change in expenditure on educational institutions for all services per student relative to different factors, by level of education (1995, 2000, 2006)

Index of change between 1995, 2000 and 2006 (GDP deflator 2000=100, constant prices)

		Primary, secondary and post-secondary non-tertiary education						Tertiary education					
		Change in expenditure (2000=100)		Change in the number of students (2000=100)		Change in expenditure per student (2000=100)		Change in expenditure (2000=100)		Change in the number of students (2000=100)		Change in expenditure per student (2000=100)	
		1995	2006	1995	2006	1995	2006	1995	2006	1995	2006	1995	2006
OECD countries	**Australia**	74	116	94	105	**79**	**111**	91	130	83	111	**110**	**117**
	Austria	93	106	m	97	**m**	**109**	97	139	91	100	**107**	**139**
	Belgium	m	110	m	107	**m**	**102**	m	110	m	105	m	**104**
	Canada[1, 2, 3]	106	119	m	95	**m**	**125**	75	124	m	m	m	m
	Czech Republic	116	137	107	91	**109**	**152**	101	189	64	145	**159**	**130**
	Denmark[1]	84	119	96	106	**87**	**112**	91	117	96	101	**95**	**116**
	Finland	89	125	93	105	**96**	**119**	90	119	89	106	**101**	**112**
	France	90	101	m	98	**m**	**103**	91	110	m	105	m	**105**
	Germany	94	100	97	97	**97**	**104**	95	107	104	108	**91**	**99**
	Greece[1]	64	m	107	m	**60**	**m**	66	m	68	m	**97**	m
	Hungary[3]	100	151	105	91	**95**	**167**	74	133	58	152	**128**	**88**
	Iceland	m	143	99	106	**m**	**135**	m	139	79	154	m	**90**
	Ireland	82	165	105	104	**78**	**159**	57	110	86	121	**66**	**91**
	Italy[3]	101	112	102	102	**99**	**110**	79	116	99	112	**80**	**104**
	Japan[1]	98	101	113	91	**86**	**112**	88	114	99	102	**88**	**112**
	Korea	m	155	107	98	**m**	**159**	m	144	68	107	m	**134**
	Luxembourg	m	m	m	m	**m**	**m**	m	m	m	m	m	m
	Mexico	81	125	93	107	**87**	**117**	77	137	77	124	**101**	**111**
	Netherlands	82	121	97	104	**84**	**116**	95	117	96	120	**99**	**98**
	New Zealand[4]	71	106	m	m	**m**	**m**	104	131	m	m	m	m
	Norway[4]	94	110	89	107	**107**	**103**	107	111	100	115	**106**	**97**
	Poland[3]	70	118	110	84	**64**	**141**	59	157	55	124	**107**	**127**
	Portugal[3]	76	99	105	89	**72**	**112**	73	146	77	108	**96**	**135**
	Slovak Republic[1]	97	140	105	89	**92**	**157**	81	171	72	158	**113**	**108**
	Spain	99	112	119	94	**84**	**119**	72	119	100	94	**72**	**127**
	Sweden	81	114	86	101	**94**	**114**	81	118	83	118	**98**	**100**
	Switzerland[3, 4]	101	109	95	102	**107**	**106**	74	135	95	132	**78**	**102**
	Turkey[3, 4]	m	m	m	m	**m**	**m**	m	m	m	m	m	m
	United Kingdom	86	134	87	89	**99**	**150**	97	149	89	107	**109**	**139**
	United States	80	117	95	103	**83**	**114**	70	122	92	118	**77**	**103**
	OECD average	***88***	***121***	***100***	***98***	***89***	***124***	***83***	***130***	***84***	***118***	***99***	***111***
	EU19 average	***89***	***121***	***101***	***97***	***87***	***126***	***82***	***131***	***83***	***117***	***101***	***113***
Partner countries	**Brazil**[1, 3, 4]	82	171	85	103	**96**	**165**	78	124	79	147	**98**	**84**
	Chile[5]	54	105	88	102	**62**	**103**	61	113	76	167	**80**	**68**
	Estonia[4]	80	140	96	83	**83**	**170**	71	121	60	117	**118**	**104**
	Israel	85	113	89	108	**96**	**105**	77	113	74	126	**104**	**89**
	Russian Federation	m	174	m	m	m	m	m	258	m	m	m	m
	Slovenia	m	m	m	m	m	m	m	m	m	m	m	m

1. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
2. Year of reference 2005 instead of 2006.
3. Public institutions only (for Canada, in tertiary education only. For Italy, except in tertiary education).
4. Public expenditure only.
5. Year of reference 2007 instead of 2006.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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INDICATOR B2

WHAT PROPORTION OF NATIONAL WEALTH IS SPENT ON EDUCATION?

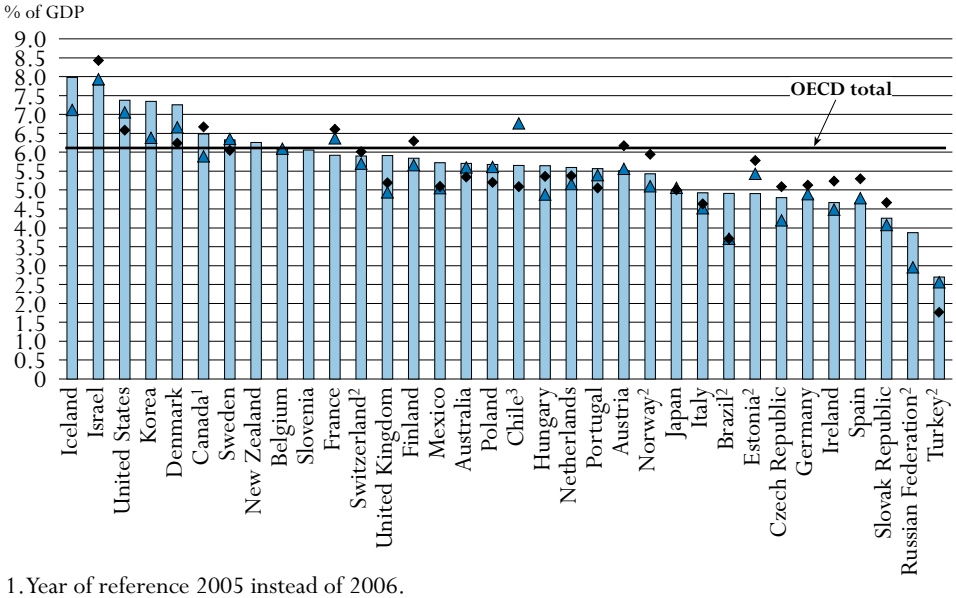
Expenditure on educational institutions as a percentage of GDP shows how a country prioritises education in relation to its overall allocation of resources. Tuition fees and investment in education from private entities other than households (see Indicator B5) have a strong impact on differences in the overall amount of financial resources that OECD and partner countries devote to their education systems, especially at the tertiary level.

Key results

Chart B2.1. Expenditure on educational institutions as a percentage of GDP for all levels of education (1995, 2000, 2006)

This chart measures educational investment through the share of national income that each country devoted to spending on educational institutions in 1995, 2000 and 2006. It captures both direct and indirect expenditure on educational institutions from both public and private sources of funds.

OECD countries spend 6.1% of their collective GDP on educational institutions. The increase in spending on educational institutions between 1995 and 2006 fell behind growth in national income in half of the 28 OECD and partner countries for which data are available.



1. Year of reference 2005 instead of 2006.
2. Public expenditure only (for Switzerland, in tertiary education only).
3. Year of reference 2007 instead of 2006.

Countries are ranked in descending order of total expenditure from both public and private sources on educational institutions in 2006.

Source: OECD. Table B2.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Other highlights of this indicator

- About 60% of combined OECD expenditure on educational institutions, or 3.7% of the combined GDP in the OECD area, is devoted to primary, secondary and post-secondary non-tertiary education. Relative to its GDP, Iceland spends nearly twice as much as the Slovak Republic.
- Tertiary education accounts for nearly one-third of the combined OECD expenditure on educational institutions (1.9% of the combined GDP). In Canada and the United States expenditure at this level reaches 40% of expenditure on educational institutions.
- Canada, Korea and the United States spend between 2.5% and 2.9% of their GDP on tertiary institutions. Korea, the United States, and the partner country Chile (1.7%) show the highest proportions of private expenditure at the tertiary level (between 1.4% and 1.9% of GDP). Relative to GDP, the United States spends over three times more on tertiary education than Italy and the Slovak Republic and nearly four times more than Turkey and the partner countries Brazil and the Russian Federation.
- More people are completing upper secondary and tertiary education than ever before, and in many countries this expansion has been accompanied by massive financial investments. For all levels of education combined, public and private investment in education increased in all countries by at least 10% between 1995 and 2006 in real terms, and increased on average by 44% in OECD countries. In three-quarters of these countries, the increase is larger for tertiary education than for primary to post-secondary non-tertiary levels combined.
- When comparing changes in expenditure on educational institutions to changes in GDP, a clearer picture emerges: in 13 of 28 OECD and partner countries for which data are available, expenditure for all levels of education as a percentage of GDP decreased between 1995 and 2000 and then increased from 2000 to 2006.
- On average in OECD countries, expenditure for all levels of education combined increased relatively more than GDP between 1995 and 2006. The increase in expenditure on educational institutions as a proportion of GDP exceeded 0.7 percentage point over this decade in Denmark, Turkey, the United Kingdom and the United States and in the partner country Brazil.
- Nine of the thirteen countries with an above average proportion of their population at basic ages of primary and lower secondary education (Australia, Denmark, Iceland, Ireland, Korea, Mexico, New Zealand and the United States and the partner country Brazil) are also those with expenditure on educational institutions as a percentage of GDP above the OECD average.
- Projections of the relative size of the school-age population help to forecast changes in the number of students and resources needed. Between 2000 and 2015, the size of the population aged 5-14 years is set to decline in 28 out of 36 OECD and partner countries.

Policy context

This indicator provides a measure of the proportion of a nation's wealth that is invested in educational institutions. Expenditure on educational institutions is an investment that can help foster economic growth, enhance productivity, contribute to personal and social development, and reduce social inequality. Relative to GDP, expenditure on educational institutions shows the priority a country gives to education in terms of its overall resource allocation. The proportion of total financial resources devoted to education in a country results from choices made by government, enterprises, and individual students and their families, and is partially driven by the size of the country's school-age population and enrolment in education. Moreover, if the social and private returns to investment in education are sufficiently large, there is an incentive to expand enrolment and increase total investment.

The indicator also includes a comparative review of changes in educational investment over time. In deciding how much to allocate to education, governments must assess demands for increased spending in areas such as teachers' salaries and educational facilities. This indicator can provide a point of reference, as it shows how the volume of educational spending, relative to national wealth and in absolute terms, has evolved over time in various OECD countries.

Evidence and explanations

What this indicator does and does not cover

This indicator covers expenditure on schools, universities and other public and private institutions involved in delivering or supporting educational services (*e.g.* educational services delivered by enterprises, as part of dual programmes). Expenditure on institutions is not limited to expenditure on instructional services but also includes public and private expenditure on ancillary services for students and families (such as housing and transport services) when these services are provided by educational institutions. Spending on research and development can be significant in tertiary education and is included in this indicator, to the extent that the research is performed by educational institutions.

Not all spending on educational goods and services occurs within educational institutions. For example, families may purchase textbooks and materials commercially or seek private tutoring for their children outside educational institutions. At the tertiary level, students' living costs and foregone earnings can also account for a significant proportion of the costs of education. All expenditure outside educational institutions is excluded from this indicator, even if it is publicly subsidised. Public subsidies for educational expenditure outside institutions are discussed in Indicators B4 and B5.

Overall investment relative to GDP

All OECD countries invest a substantial proportion of national resources in education. Taking into account both public and private sources of funds, OECD countries as a whole spend 6.1% of their collective GDP on educational institutions at the pre-primary, primary, secondary and tertiary levels. Given the tight constraints on public budgets, such a large spending item is subject to close scrutiny by governments looking for ways to reduce or limit the growth of expenditure.

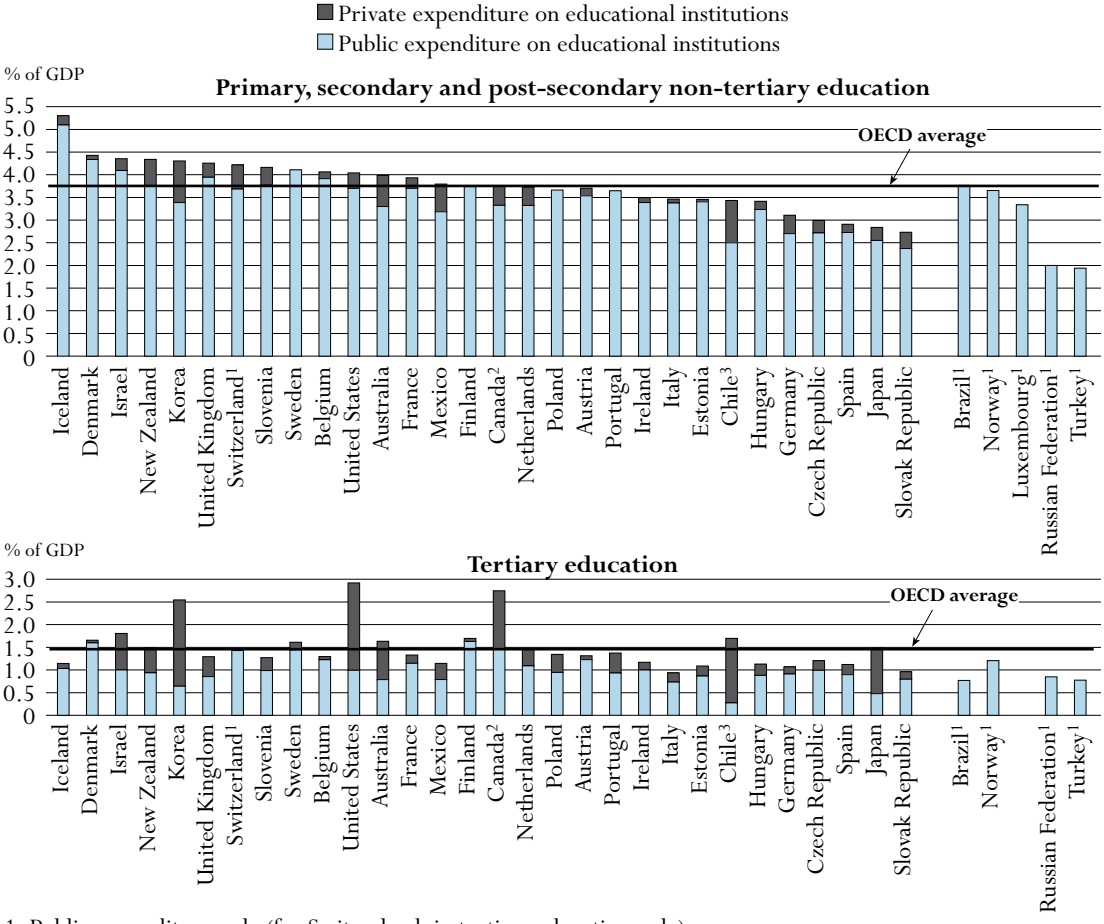
The highest spending on educational institutions is in Denmark, Iceland, Korea and the United States and the partner country Israel, with more than 7% of GDP accounted for by public and

private spending on educational institutions. Seven out of 28 OECD countries for which data are available, as well as 3 out of 6 partner countries, spend less than 5% of GDP on educational institutions; in Turkey and in the partner country the Russian Federation, the figure is the lowest at 2.7% and 3.9%, respectively (Table B2.1).

Expenditure on educational institutions by level of education

Differences in spending on educational institutions are most striking at the pre-primary level. It ranges from less than 0.1% of GDP in Australia to 0.8% or more in Hungary and Iceland, and the partner country Israel (Table B2.2). Differences at the pre-primary level can be explained mainly by participation rates among younger children (see Indicator C1), but are also sometimes a result of the extent to which private early childhood education is covered by this indicator.

Chart B2.2. Expenditure on educational institutions as a percentage of GDP (2006)
From public and private sources, by level of education and source of funds



1. Public expenditure only (for Switzerland, in tertiary education only).
2. Year of reference 2005.
3. Year of reference 2007.

Countries are ranked in descending order of expenditure from both public and private sources on educational institutions in primary, secondary and post-secondary non-tertiary education.

Source: OECD. Table B2.4. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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In Ireland, for example, the majority of early childhood education is delivered in private institutions that are not yet covered by the Irish data. Moreover, high-quality early childhood education and care are provided not only by the educational institutions covered by this indicator but often also in more informal settings. Inferences on access to and quality of early childhood education and care should therefore be made with caution.

On average, among OECD countries, 65% of expenditure on educational institutions education (or 60% of the combined expenditure) goes to primary, secondary and post-secondary non-tertiary levels. Because enrolment in primary and lower secondary education is almost universal in OECD countries, and participation rates in upper secondary education are high (see Indicator C1), these levels account for the bulk of expenditure on educational institutions: 3.7% of the combined OECD GDP. At the same time, significantly higher spending on educational institutions per student at the upper secondary and tertiary levels causes the overall investment in these levels to be higher than enrolment numbers alone would suggest.

Nearly one-third of combined OECD expenditure on educational institutions is allocated to tertiary education. At this level, the pathways available to students, the duration of programmes and the organisation of teaching vary greatly among OECD countries, resulting in significant differences in the expenditure allocated to tertiary education. On the one hand, Canada, Korea and the United States and the partner country Israel spend between 1.8% and 2.9% of their GDP on tertiary institutions and are among those with the highest proportion of private expenditure on tertiary education. On the other hand, the proportion of GDP spent on tertiary institutions in Belgium, France, Iceland, Mexico and the United Kingdom and in the partner countries Brazil and Slovenia is below the OECD average; these countries are among the OECD countries in which the proportion of GDP spent on primary, secondary and post-secondary non-tertiary education is above the OECD average (Table B2.1 and Chart B2.2).

Changes in overall educational spending between 1995, 2000 and 2006

More people are completing upper secondary and tertiary education than ever before (see Indicator A1), and in many countries, this has been accompanied by massive financial investment. For all levels of education combined, public and private investment in education increased in all countries by at least 10% between 1995 and 2006 in real terms, and increased on average by 44% in OECD countries (see Table B2.5 available on line).

The differences between countries are partly related to the variation of the school-age population, but are also affected by trends in national income. For example, in Ireland, spending on all levels of education combined increased by more than 90% between 1995 and 2006, but GDP more than doubled over the same period, leading to a decrease in expenditure on educational institutions as a proportion of GDP (see Table B2.5 available on line).

Expenditure for all levels of education combined increased at a greater rate than GDP did in half of the 28 countries for which data are available for 1995 and 2006. The increase exceeded 0.7 percentage point over the period in Denmark (6.2% to 7.3%), Turkey (1.7% to 2.7%), the United Kingdom (5.2% to 5.9%), the United States (6.6% to 7.4%) and the partner country Brazil (3.7% to 4.9%). However, the increase in spending on educational institutions tended to lag behind the growth in national income in the other half of the 28 OECD and partner countries for which data are available. The most notable differences are in Austria, France and Spain and

in the partner countries Estonia and Israel where the proportion of GDP spent on educational institutions decreased by 0.6 percentage point or more between 1995 and 2006 (Table B2.1), mainly as a result of the decrease in expenditure on educational institutions as a percentage of GDP at the primary, secondary and post-secondary non-tertiary levels.

When comparing changes in expenditure on educational institutions to changes in GDP before and after 2000, a clearer picture emerges: in 13 out of 28 OECD and partner countries for which data are available, expenditure for all levels of education as a percentage of GDP decreased between 1995 and 2000 and then increased from 2000 to 2006. Nevertheless, expenditure on educational institutions for all levels of education as a percentage of GDP increased in both of these periods in 6 of the 28 OECD and partner countries with comparable data – Australia, Denmark, Poland, Portugal, Turkey and the United States – and decreased in both of these 5-year periods in 6 other countries (Austria, France, Germany, Spain and the partner countries Estonia and Israel). From the three remaining countries (Japan, Sweden and the partner country Chile), only in Chile expenditure as a percentage of GDP showed a clear increase between 1995 and 2000, followed by a significant decrease after 2000.

Between 1995 and 2006, spending on the various levels of education evolved quite differently. From primary to post-secondary non-tertiary education, expenditure on educational institutions as a proportion of GDP decreased in 16 out of the 28 OECD and partner countries for which data are available. In tertiary education, expenditure on educational institutions as a proportion of GDP decreased from 1995 to 2006 only in Finland, France, Germany, Ireland, the Netherlands and Norway and in the partner country Israel.

In 21 out of the 28 OECD and partner countries for which data are available, expenditure on educational institutions (compared to GDP) for tertiary education between 1995 and 2006 increased at a greater rate than for primary, secondary and post-secondary non-tertiary education. This is related to the proportionally greater increase in tertiary students compared to the relative stability in the number of students at lower levels (Table B1.5). The only exceptions to this pattern are Australia, Denmark, the Netherlands, Turkey, the United Kingdom and partner countries Brazil and Chile. In Canada, the Czech Republic, Spain, Switzerland and the United States and in the partner country Estonia, the level of the increase in spending on tertiary education exceeded that at the primary, secondary and post-secondary non-tertiary levels by more than 0.7 percentage point (Table B2.1).

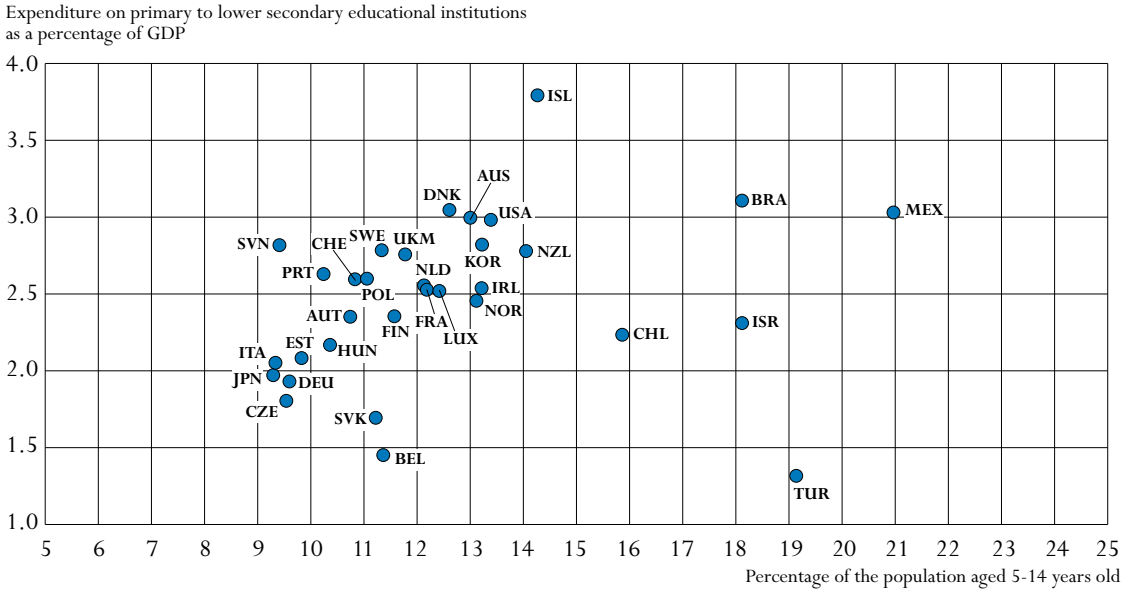
Relationship between national expenditure on educational institutions and demographic patterns

The level of national resources devoted to education depend on a number of interrelated factors of supply and demand, such as the demographic structure of the population, enrolment rates, income per capita, national levels of teachers' salaries, and the organisation and delivery of instruction. For example, OECD countries with high spending levels may enrol larger numbers of students, while countries with low spending levels may either limit access to higher levels of education or deliver educational services in a particularly efficient manner. The distribution of enrolments among sectors and fields of study may also differ, as may the duration of studies and the scale and organisation of related educational research. Finally, large differences in GDP among OECD countries mean that similar percentages of GDP spent on educational institutions can result in very different absolute amounts per student (see Indicator B1).

The size of a country's school-age population determine the potential demand for initial education and training: the larger this population, the greater the potential demand for educational services. Among OECD countries with comparable national income, a country in which this population is relatively large will have to spend a higher percentage of its GDP on educational institutions so that school-age children and youth have the opportunity to receive the same quantity of education as in other OECD countries, other things being equal. Conversely, if this population is relatively small, the country will be required to spend less of its wealth on educational institutions in order to achieve similar results.

Comparing expenditure on primary and lower secondary educational institutions as a percentage of GDP with the size of the population aged 5-14 years (broadly corresponding to the ages of primary and lower secondary school populations) shows the following. Among countries with data available on both these measures, 9 of the 13 countries with an above average proportion of their population at the basic ages of primary and lower secondary education (Australia, Denmark, Iceland, Ireland, Korea, Mexico, New Zealand and the United States and the partner country Brazil) also have expenditure on educational institutions as a percentage of GDP above the average (Chart B2.3). In contrast, the Czech Republic, Germany, Italy, Japan and the partner countries Estonia and Slovenia, which have the lowest proportions of the population aged 5-14 years (less than 10%), have below average expenditure on educational institutions, except in the case of Slovenia (Table B2.3 and Chart B2.3).

Chart B2.3. Expenditure on primary and lower secondary educational institutions as a percentage of GDP and proportion of the population aged 5-14 (2006)



Please refer to the Reader's Guide for the list of country codes used in this chart.

Source: OECD. Table B2.2 and Table B2.3. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664243822887

A similar relationship between expenditure and the proportion of the population is less evident for the population aged 15-19 and 20-29 years, broadly corresponding to the ages of the upper secondary and tertiary school populations. This may result from various factors, such as the fact that the age of students at these levels varies much more than at lower levels of education. Moreover, the proportion of the school-age population does not, in and of itself, determine the level of expenditure. This is also true for primary and lower secondary education. Countries with similar proportions of the population in education may spend different shares of their GDP on educational institutions, according to the priority they give to education or the ways they distribute education expenditure among levels of education (Table B2.3 and Chart B2.3). For example, the proportion of the population at basic ages of primary and lower secondary education is quite similar in Poland and in the Slovak Republic (11.1% and 11.3%, respectively), but Poland spends 0.9 percentage point more of its GDP on educational institutions than the Slovak Republic (2.6% and 1.7%, respectively).

Projections of the relative size of the school-age population give some idea of changes in the number of students and the resources that will be necessary to support them in the coming years. The size of the population aged 5-14 years is set to decline in 28 out of 36 OECD and partner countries between 2000 and 2015. These trends may create difficult management challenges such as managing surplus capacity in schools, school reorganisation and even school closures. These challenges appear to be the greatest over the next decade in the Czech Republic, Hungary, Korea, Poland, the Slovak Republic and the partner countries Estonia and the Russian Federation. Student numbers in primary and lower secondary education are expected to fall in these countries by almost 20% (Table B2.3). However, some countries may also face challenges related to an increase in the school-age population. This is particularly the case in Ireland, Spain and the partner country Israel, as the population aged 5-14 years is expected to increase by more than 15% up to 2015. The partner country Israel may have particular challenges, as in 2006 it is already among the three OECD and partner countries that spend the largest proportions of their GDP on primary, secondary and post-secondary education (4.4% of GDP).

Among 15-19 and 20-29 year-olds, the age groups broadly corresponding to upper secondary and tertiary education, population trends are more varied, although projections show a decline in population numbers of respectively 6% and 3% between 2000 and 2015. However, at these levels, the projections of population must be interpreted with caution. In fact, at lower levels of education (primary and lower secondary) enrolment rates are close to 100% in OECD countries (see Indicator C1) and the number of students is closely related to demographic changes. This is not the case in upper secondary and tertiary education (Table B2.3).

Expenditure on educational institutions by source of funding

Increased expenditure on educational institutions in response to growth in enrolments implies a heavier financial burden for society as a whole, but it does not fall entirely on public funding. On average, of the 6.1% of the combined OECD area GDP devoted to education, more than three-quarters comes from public sources (Table B2.4). The majority of funding is from public sources in all countries and is nearly the sole source of funding in Finland and Sweden (more than 97% of funding from public source). However, there are greater differences among countries in the breakdown of educational expenditure by source of funding and by level of education (see Indicator B3).

Definitions and methodologies

Data refer to the financial year 2006 and are based on the UOE data collection on education statistics administered by the OECD in 2008 (for details see Annex 3 at *www.oecd.org/edu/eag2009*). Expenditure on educational institutions, as covered by this indicator, includes expenditure on both instructional and non-instructional educational institutions. Instructional educational institutions are educational institutions which directly provide instructional programmes (*i.e.* teaching) to individuals directly in an organised group setting or through distance education. Business enterprises or other institutions providing short-term courses of training or instruction to individuals on a one-to-one basis are not included. However, expenditure of business enterprises providing training or instruction to students as part of the dual educational programmes are included. Non-instructional educational institutions provide administrative, advisory or professional services to other educational institutions but do not enrol students themselves. Examples include national, state and provincial ministries or departments of education; other bodies that administer education at various levels of government or analogous bodies in the private sector; and organisations that provide education-related services, such as vocational or psychological counselling, placement, testing, financial aid to students, curriculum development, educational research, building operations and maintenance services, transport of students, and student meals and housing.

This definition of institutions ensures that expenditure on services, which are provided in some OECD countries by schools and universities and in others by agencies other than schools, are covered on a comparable basis.

The distinction by source of funds is based on the initial source of funds and does not reflect subsequent public-to-private or private-to-public transfers. For this reason, subsidies to households and other entities, such as subsidies for tuition fees and other payments to educational institutions, are included in public expenditure in this indicator. Payments from households and other private entities to educational institutions include tuition and other fees, net of offsetting public subsidies. A detailed discussion of public subsidies can be found in Indicator B5.

The OECD average is calculated as the simple average of all OECD countries for which data are available. The OECD total reflects the value of the indicator if the OECD region is considered as a whole (see the Reader's Guide for details).

Table B2.1 shows expenditure on educational institutions for the financial years 1995, 2000 and 2006. The data on expenditure for 1995 and 2000 were obtained by a special survey updated in 2008; expenditure for 1995 was adjusted to reflect the methods and definitions used in the 2008 UOE data collection. For comparisons over time, the OECD average accounts only for those OECD countries for which data are available for all reported reference years.

The population projections are taken from the UN Population Database. The changes in the sizes of the respective populations over the period 2000 to 2015 are expressed as percentages relative to the size of the population in 2000 (index = 100). The statistics cover residents in the country, regardless of citizenship and of educational or labour market status.

The projected change in student numbers is estimated from the projected population changes as follows: 5-14 year-olds for primary and lower secondary, 15-19 year-olds for upper secondary, 20-29 year-olds for tertiary education.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/664243822887

- ***Table B2.5. Change in expenditure on educational institutions and in GDP (1995, 2000, 2006)***

B2

Table B2.1.

Expenditure on educational institutions as a percentage of GDP, by level of education (1995, 2000, 2006)

From public and private sources, by year

		2006			2000			1995		
		Primary, secondary and post-secondary non-tertiary education	Tertiary education	Total all levels of education	Primary, secondary and post-secondary non-tertiary education	Tertiary education	Total all levels of education	Primary, secondary and post-secondary non-tertiary education	Tertiary education	Total all levels of education
OECD countries	**Australia**	4.0	1.6	**5.7**	4.0	1.5	**5.6**	3.6	1.6	**5.3**
	Austria	3.7	1.3	**5.5**	3.9	1.1	**5.5**	4.3	1.2	**6.2**
	Belgium	4.1	1.3	**6.1**	4.1	1.3	**6.1**	m	m	**m**
	Canada[1, 2]	3.7	2.7	**6.5**	3.3	2.3	**5.9**	4.3	2.1	**6.7**
	Czech Republic	3.0	1.2	**4.8**	2.8	0.8	**4.2**	3.5	0.9	**5.1**
	Denmark[2]	4.4	1.7	**7.3**	4.1	1.6	**6.6**	4.0	1.6	**6.2**
	Finland	3.8	1.7	**5.8**	3.6	1.7	**5.6**	4.0	1.9	**6.3**
	France	3.9	1.3	**5.9**	4.3	1.3	**6.4**	4.5	1.4	**6.6**
	Germany	3.1	1.1	**4.8**	3.3	1.1	**4.9**	3.4	1.1	**5.1**
	Greece[2]	m	m	**m**	2.7	0.8	**3.6**	2.0	0.6	**2.6**
	Hungary	3.4	1.1	**5.6**	2.9	1.1	**4.9**	3.5	1.0	**5.3**
	Iceland[2]	5.3	1.1	**8.0**	4.8	1.1	**7.1**	m	m	**m**
	Ireland	3.5	1.2	**4.7**	2.9	1.5	**4.5**	3.8	1.3	**5.2**
	Italy	3.5	0.9	**4.9**	3.2	0.9	**4.5**	3.5	0.7	**4.6**
	Japan[2]	2.8	1.5	**5.0**	3.0	1.4	**5.0**	3.1	1.3	**5.0**
	Korea	4.3	2.5	**7.3**	3.6	2.3	**6.4**	m	m	**m**
	Luxembourg[2, 3]	3.3	m	**m**	m	m	**m**	m	m	**m**
	Mexico	3.8	1.1	**5.7**	3.5	1.0	**5.0**	3.7	1.0	**5.1**
	Netherlands	3.7	1.5	**5.6**	3.4	1.4	**5.1**	3.4	1.6	**5.4**
	New Zealand	4.3	1.5	**6.3**	m	m	**m**	m	m	**m**
	Norway[3]	3.7	1.2	**5.4**	3.8	1.2	**5.1**	4.3	1.6	**5.9**
	Poland	3.7	1.3	**5.7**	3.9	1.1	**5.6**	3.6	0.8	**5.2**
	Portugal	3.6	1.4	**5.6**	3.9	1.0	**5.4**	3.6	0.9	**5.0**
	Slovak Republic[2]	2.7	1.0	**4.3**	2.7	0.8	**4.1**	3.1	0.7	**4.7**
	Spain	2.9	1.1	**4.7**	3.2	1.1	**4.8**	3.8	1.0	**5.3**
	Sweden	4.1	1.6	**6.3**	4.3	1.6	**6.3**	4.1	1.5	**6.0**
	Switzerland[3]	4.2	1.4	**5.9**	4.2	1.1	**5.7**	4.6	0.9	**6.0**
	Turkey[3]	1.9	0.8	**2.7**	1.8	0.8	**2.5**	1.2	0.5	**1.7**
	United Kingdom	4.3	1.3	**5.9**	3.5	1.0	**4.9**	3.6	1.1	**5.2**
	United States	4.0	2.9	**7.4**	3.9	2.7	**7.0**	3.8	2.3	**6.6**
	OECD average	***3.7***	***1.4***	***5.7***	~	~	~	~	~	~
	OECD total	***3.7***	***1.9***	***6.1***	~	~	~	~	~	~
	EU19 average	***3.6***	***1.3***	***5.5***	~	~	~	~	~	~
	OECD mean for countries with 1995, 2000 and 2006 data (24 countries)	***3.6***	***1.4***	***5.5***	***3.5***	***1.3***	***5.2***	***3.7***	***1.3***	***5.4***
Partner countries	**Brazil**[3]	3.8	0.8	**4.9**	2.6	0.7	**3.7**	2.6	0.7	**3.7**
	Chile[4]	3.4	1.7	**5.7**	4.4	2.0	**6.7**	3.2	1.7	**5.1**
	Estonia[3]	3.5	1.1	**4.9**	3.9	1.0	**5.4**	4.2	1.0	**5.8**
	Israel	4.4	1.8	**7.8**	4.5	1.9	**7.9**	4.9	1.8	**8.4**
	Russian Federation[3]	2.0	0.8	**3.9**	1.7	0.5	**2.9**	m	m	**m**
	Slovenia	4.2	1.3	**6.1**	m	m	**m**	m	m	**m**

1. Year of reference 2005 instead of 2006.
2. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
3. Public expenditure only (for Switzerland, in tertiary education only).
4. Year of reference 2007 instead of 2006.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664243822887

Table B2.2.

Expenditure on educational institutions as a percentage of GDP, by level of education (2006)

From public and private sources[1]

		Pre-primary education (for children aged 3 and older)	Primary, secondary and post-secondary non-tertiary education				Tertiary education			All levels of education combined (including undistributed programmes)
			All primary, secondary and post-secondary non-tertiary education	Primary & lower secondary education	Upper secondary education	Post-secondary non-tertiary education	All tertiary education	Tertiary-type B education	Tertiary-type A education and advanced research programmes	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	**Australia**	0.1	4.0	3.0	0.9	0.1	1.6	0.1	1.5	**5.7**
	Austria	0.5	3.7	2.4	1.3	n	1.3	0.1	1.2	**5.5**
	Belgium[2]	0.6	4.1	1.5	2.6	x(4)	1.3	x(6)	x(6)	**6.1**
	Canada[3]	x(2)	3.7	x(2)	x(2)	x(7)	2.7	1.0	1.7	**6.5**
	Czech Republic	0.5	3.0	1.8	1.1	n	1.2	n	1.2	**4.8**
	Denmark	0.7	4.4	3.1	1.4	x(4, 6)	1.7	x(6)	x(6)	**7.3**
	Finland	0.4	3.8	2.4	1.4	x(4)	1.7	n	1.7	**5.8**
	France	0.7	3.9	2.5	1.4	n	1.3	0.3	1.1	**5.9**
	Germany	0.5	3.1	1.9	1.0	0.2	1.1	0.1	1.0	**4.8**
	Greece	m	m	m	m	m	m	m	m	m
	Hungary	0.8	3.4	2.2	1.1	0.1	1.1	n	1.1	**5.6**
	Iceland	0.9	5.3	3.8	1.5	x(4)	1.1	x(6)	x(6)	**8.0**
	Ireland	n	3.5	2.5	0.7	0.2	1.2	x(6)	x(6)	**4.7**
	Italy	0.5	3.5	2.1	1.4	n	0.9	n	0.9	**4.9**
	Japan	0.2	2.8	2.0	0.9	x(4, 6)	1.5	0.3	1.2	**5.0**
	Korea	0.2	4.3	2.8	1.5	a	2.5	0.5	2.0	**7.3**
	Luxembourg[4]	x(2)	3.3	2.5	0.8	m	m	m	m	m
	Mexico	0.6	3.8	3.0	0.8	a	1.1	x(6)	x(6)	**5.7**
	Netherlands	0.4	3.7	2.6	1.2	n	1.5	a	1.5	**5.6**
	New Zealand	0.3	4.3	2.8	1.4	0.2	1.5	0.2	1.2	**6.3**
	Norway[4]	0.3	3.7	2.5	1.2	x(4)	1.2	x(6)	x(6)	**5.4**
	Poland	0.6	3.7	2.6	1.1	n	1.3	n	1.3	**5.7**
	Portugal	0.4	3.6	2.6	1.0	m	1.4	x(6)	x(6)	**5.6**
	Slovak Republic	0.5	2.7	1.7	1.0	x(4)	1.0	x(4)	1.0	**4.3**
	Spain	0.6	2.9	x(2)	x(2)	a	1.1	x(6)	x(6)	**4.7**
	Sweden	0.6	4.1	2.8	1.3	n	1.6	x(6)	x(6)	**6.3**
	Switzerland[4]	0.2	4.2	2.6	1.6	0.1	1.4	n	1.4	**5.9**
	Turkey[4]	m	1.9	1.3	0.6	a	0.8	x(6)	x(6)	**2.7**
	United Kingdom	0.3	4.3	2.8	1.5	n	1.3	x(6)	x(6)	**5.9**
	United States	0.4	4.0	3.0	1.0	m	2.9	x(6)	x(6)	**7.4**
	OECD average	***0.5***	***3.7***	***2.5***	***1.2***	***n***	***1.4***	***0.2***	***1.3***	***5.7***
	OECD total	***0.4***	***3.7***	***2.6***	***1.1***	***n***	***1.9***	***0.2***	***1.2***	***6.1***
	EU19 average	***0.5***	***3.6***	***2.3***	***1.2***	***n***	***1.3***	***0.0***	***1.2***	***5.5***
Partner countries	**Brazil**[4]	0.4	3.8	3.1	0.6	a	0.8	x(6)	x(6)	**4.9**
	Chile[5]	0.5	3.4	2.2	1.2	a	1.7	0.4	1.3	**5.7**
	Estonia	0.4	3.5	2.1	1.2	0.2	1.1	0.3	0.8	**4.9**
	Israel	0.9	4.4	2.3	2.0	n	1.8	0.4	1.5	**7.8**
	Russian Federation[4]	0.5	2.0	x(2)	x(2)	x(2)	0.8	0.2	0.7	**3.9**
	Slovenia	0.6	4.2	2.8	1.3	x(4)	1.3	x(6)	x(6)	**6.1**

1. Including international sources.
2. Column 3 only refers to primary education and column 4 refers to all secondary education.
3. Year of reference 2005.
4. Public expenditure only (for Switzerland, in tertiary education only).
5. Year of reference 2007.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664243822887

B2

Table B2.3.

Expenditure on educational institutions as a percentage of GDP (2006), proportion of the population at basic ages of primary to tertiary education (school year 2006/2007) and demographic trends (2000-2015)

Expenditure on educational institutions from public and private sources; proportion in 2006 and index of change between 2000, 2005 and 2015 of the population aged 5-14, 15-19 and 20-29

		Expenditure on educational institutions as a percentage of GDP (2006)			Percentage of the population (school year 2006/2007)			Change in the size of the population (2000=100)					
								Ages 5-14		Ages 15-19		Ages 20-29	
		Primary & lower secondary education	Upper secondary education	Tertiary education	Ages 5-14	Ages 15-19	Ages 20-29	2005	2015	2005	2015	2005	2015
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries	Australia	3.0	0.9	1.6	13.0	6.9	14.0	101	99	105	105	101	111
	Austria	2.4	1.3	1.3	10.8	6.0	12.7	97	87	99	93	99	101
	Belgium[1]	1.5	2.6	1.3	11.4	6.1	12.4	100	94	102	99	99	99
	Canada[1]	x(2)	3.7	2.7	12.1	6.7	13.8	97	90	104	98	105	114
	Czech Republic	1.8	1.1	1.2	9.6	6.3	14.8	84	76	94	66	92	74
	Denmark	3.1	1.4	1.7	12.7	5.9	11.4	106	99	110	125	88	96
	Finland	2.4	1.4	1.7	11.6	6.2	12.6	97	91	96	91	105	105
	France	2.5	1.4	1.3	12.2	6.4	12.8	100	104	101	99	98	97
	Germany	1.9	1.0	1.1	9.6	5.8	11.9	93	80	104	89	100	101
	Greece[1]	m	m	m	9.5	5.3	13.8	94	91	82	73	94	73
	Hungary	2.2	1.1	1.1	10.4	6.2	14.4	91	77	95	78	92	76
	Iceland	3.8	x(1)	1.1	14.3	7.5	14.5	100	98	105	105	102	107
	Ireland	2.5	0.7	1.2	13.3	6.8	16.9	99	120	92	89	113	101
	Italy	2.1	1.4	0.9	9.4	5.0	11.5	98	98	93	90	86	75
	Japan	2.0	0.9	1.5	9.3	5.0	12.0	96	88	88	81	87	69
	Korea	2.8	1.5	2.5	13.3	6.6	15.1	97	70	85	81	92	81
	Luxembourg[1]	2.5	0.8	m	12.5	5.9	12.6	107	107	113	133	100	121
	Mexico	3.0	0.8	1.1	21.0	10.0	17.6	98	91	96	100	95	101
	Netherlands	2.6	1.2	1.5	12.2	6.1	12.0	101	96	106	107	93	95
	New Zealand	2.8	1.4	1.5	14.1	7.6	13.2	100	98	114	111	101	116
	Norway[1]	2.5	1.2	1.2	13.2	6.6	12.1	104	98	112	120	92	106
	Poland	2.6	1.1	1.3	11.1	7.3	16.8	83	66	87	59	109	89
	Portugal	2.6	1.0	1.4	10.3	5.5	13.9	99	101	87	82	97	76
	Slovak Republic	1.7	1.0	1.0	11.3	7.4	16.9	85	69	91	65	102	85
	Spain	x(2)	2.9	1.1	9.4	5.1	14.6	99	116	89	79	100	72
	Sweden	2.8	1.3	1.6	11.4	6.8	12.0	92	89	116	98	96	114
	Switzerland[1]	2.6	1.6	1.4	10.9	6.0	12.2	100	87	106	107	99	112
	Turkey[1]	1.3	0.6	0.8	19.2	8.7	18.4	102	97	97	101	105	106
	United Kingdom	2.8	1.5	1.3	11.8	6.6	13.2	97	93	108	100	101	111
	United States	3.0	1.0	2.9	13.4	7.1	14.0	101	104	108	109	106	121
	OECD average	*2.5*	*1.2*	*1.4*	*12.1*	*6.5*	*13.8*	*97*	*93*	*100*	*94*	*98*	*97*
	EU19 average	*2.3*	*1.2*	*1.3*	*12.6*	*6.7*	*14.5*	*96*	*91*	*97*	*91*	*99*	*95*
Partner countries	Brazil[1]	3.1	0.6	0.8	18.2	9.1	17.4	99	105	96	95	110	108
	Chile[1]	2.2	1.2	1.7	15.9	8.8	15.9	95	84	111	100	103	122
	Estonia	2.1	1.2	1.1	9.9	7.7	14.9	75	73	105	60	104	96
	Israel	2.3	2.0	1.8	18.2	8.1	15.6	109	125	104	121	106	114
	Russian Federation[1]	x(2)	2.0	0.8	9.6	7.8	16.8	73	72	98	53	109	93
	Slovenia	2.8	1.3	1.3	9.5	5.9	14.4	87	80	91	67	99	78

1. See notes on expenditure on educational institutions as a percentage of GDP in Table B2.2.

Source: OECD and United Nations database. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table B2.4.

Expenditure on educational institutions as a percentage of GDP, by source of fund and level of education (2006)

From public and private sources of funds

		Primary, secondary and post-secondary non-tertiary education			Tertiary education			Total all levels of education		
		Public[1]	Private[2]	Total	Public[1]	Private[2]	Total	Public[1]	Private[2]	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	**Australia**	3.3	0.7	**4.0**	0.8	0.8	**1.6**	4.1	1.6	**5.7**
	Austria	3.5	0.2	**3.7**	1.2	0.1	**1.3**	5.2	0.4	**5.5**
	Belgium	3.9	0.2	**4.1**	1.2	0.1	**1.3**	5.9	0.2	**6.1**
	Canada[3, 4]	3.3	0.4	**3.7**	1.5	1.3	**2.7**	4.8	1.7	**6.5**
	Czech Republic	2.7	0.3	**3.0**	1.0	0.2	**1.2**	4.2	0.6	**4.8**
	Denmark[4]	4.3	0.1	**4.4**	1.6	0.1	**1.7**	6.7	0.6	**7.3**
	Finland	3.7	n	**3.8**	1.6	0.1	**1.7**	5.7	0.1	**5.8**
	France	3.7	0.2	**3.9**	1.1	0.2	**1.3**	5.5	0.4	**5.9**
	Germany	2.7	0.4	**3.1**	0.9	0.2	**1.1**	4.1	0.7	**4.8**
	Greece	m	m	m	m	m	m	m	m	m
	Hungary	3.2	0.2	**3.4**	0.9	0.3	**1.1**	5.1	0.5	**5.6**
	Iceland	5.1	0.2	**5.3**	1.0	0.1	**1.1**	7.2	0.8	**8.0**
	Ireland	3.4	0.1	**3.5**	1.0	0.2	**1.2**	4.4	0.3	**4.7**
	Italy	3.4	0.1	**3.5**	0.7	0.2	**0.9**	4.6	0.3	**4.9**
	Japan[4]	2.6	0.3	**2.8**	0.5	1.0	**1.5**	3.3	1.7	**5.0**
	Korea	3.4	0.9	**4.3**	0.6	1.9	**2.5**	4.5	2.9	**7.3**
	Luxembourg[4]	3.3	m	m	m	m	m	m	m	m
	Mexico	3.2	0.6	**3.8**	0.8	0.4	**1.1**	4.6	1.1	**5.7**
	Netherlands	3.3	0.4	**3.7**	1.1	0.4	**1.5**	4.8	0.8	**5.6**
	New Zealand	3.8	0.6	**4.3**	0.9	0.5	**1.5**	5.0	1.3	**6.3**
	Norway	3.7	m	m	1.2	m	m	5.4	m	m
	Poland	3.7	n	**3.7**	0.9	0.4	**1.3**	5.2	0.5	**5.7**
	Portugal	3.6	n	**3.6**	0.9	0.4	**1.4**	5.1	0.4	**5.6**
	Slovak Republic[4]	2.4	0.4	**2.7**	0.8	0.2	**1.0**	3.6	0.6	**4.3**
	Spain	2.7	0.2	**2.9**	0.9	0.2	**1.1**	4.2	0.5	**4.7**
	Sweden	4.1	n	**4.1**	1.4	0.2	**1.6**	6.2	0.2	**6.3**
	Switzerland	3.7	0.5	**4.2**	1.4	m	m	5.4	m	m
	Turkey	1.9	m	m	0.8	m	m	2.7	m	m
	United Kingdom	3.9	0.3	**4.3**	0.9	0.4	**1.3**	5.2	0.7	**5.9**
	United States	3.7	0.3	**4.0**	1.0	1.9	**2.9**	5.0	2.4	**7.4**
	OECD average	*3.4*	*0.3*	*3.8*	*1.0*	*0.5*	*1.5*	*4.9*	*0.8*	*5.8*
	OECD total	*3.4*	*0.3*	*3.7*	*0.9*	*1.1*	*2.0*	*4.7*	*1.5*	*6.2*
	EU19 average	*3.4*	*0.2*	*3.6*	*1.1*	*0.2*	*1.3*	*5.0*	*0.5*	*5.5*
Partner countries	**Brazil**	3.8	m	m	0.8	m	m	4.9	m	m
	Chile[5]	2.5	0.9	**3.4**	0.3	1.4	**1.7**	3.1	2.5	**5.7**
	Estonia	3.4	0.1	**3.5**	0.9	0.2	**1.1**	4.6	0.3	**4.9**
	Israel	4.1	0.3	**4.4**	1.0	0.8	**1.8**	6.2	1.6	**7.8**
	Russian Federation	2.0	m	m	0.8	m	m	3.9	m	m
	Slovenia	3.8	0.4	**4.2**	1.0	0.3	**1.3**	5.3	0.8	**6.1**

1. Including public subsidies to households attributable for educational institutions, as well as including direct expenditure on educational institutions from international sources.
2. Net of public subsidies attributable for educational institutions.
3. Year of reference 2005.
4. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
5. Year of reference 2007.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

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INDICATOR B3

HOW MUCH PUBLIC AND PRIVATE INVESTMENT IS THERE IN EDUCATION?

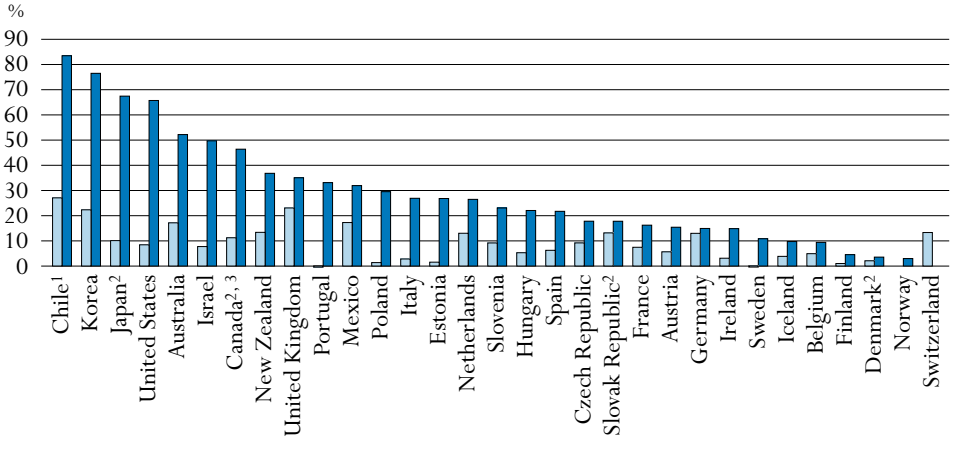
This indicator examines the proportion of public and private funding allocated to educational institutions at each level. It also breaks down private funding by households and expenditures by private entities other than households. It sheds some light on the widely debated issue of how the financing of educational institutions should be shared between public and private entities, particularly at the tertiary level.

Key results

Chart B3.1. Share of private expenditure on educational institutions (2006)

The chart shows private spending on educational institutions as a percentage of total spending on educational institutions. This includes all money transferred to educational institutions through private sources, including public funding via subsidies to households, private fees for educational services or other private spending (e.g. on accommodation) passing through the institution.

On average over 90% of primary, secondary and post-secondary non-tertiary education in OECD countries, and never less than 80% (except in Korea, the United Kingdom and in the partner country Chile), is paid for publicly. However, in tertiary education the proportion funded privately varies widely, from less than 5% in Denmark, Finland and Norway, to more than 40% in Australia, Canada, Japan and the United States and in the partner country Israel, and to over 75% in Korea and the partner country Chile. As with tertiary graduation and entry rates, the proportion of private funding can be influenced by the incidence of international students which form a relatively high proportion in Australia and New Zealand.



1. Year of reference 2007.
2. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
3. Year of reference 2005.

Countries are ranked in descending order of the share of private expenditure on educational institutions for tertiary education.

Source: OECD. Table B3.2a and Table B3.2b. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Other highlights of this indicator

- In all countries for which comparable data are available, public funding on educational institutions at all levels combined, increased between 1995 and 2006. Private spending increased at an even greater rate in nearly three-quarters of these countries. Nevertheless, in 2006, 85% of expenditure, on average, for all levels of education combined, was still from public sources.
- The share of spending on tertiary level educational institutions from private sources rose substantially in some countries between 1995 and 2006, but this was not the case for other levels of education.
- On average among the 18 OECD countries for which trend data are available, the share of public funding in tertiary institutions decreased slightly from 78% in 1995 to 76% in 2000 and to 72% in 2005 and 2006. This trend is mainly influenced by non-European countries in which tuition fees are generally higher and enterprises participate more actively by providing grants to finance tertiary institutions.
- The increase in private investment has gone hand in hand with increased public financing. Between 2000 and 2006, in 7 out of the 11 OECD countries with the largest increase in public expenditure on tertiary education, tertiary institutions charged low or no tuition fees. The exceptions are Korea, New Zealand, the United Kingdom and the United States.
- Compared to other levels of education, tertiary institutions and to a lesser extent pre-primary institutions obtain the largest proportions of funds from private sources, at 27% and 19%, respectively.
- In tertiary education, households account for most private expenditure in most countries for which data are available. Exceptions are Austria, Canada and Sweden where private expenditure from entities other than households is more significant.

Policy context

Cost-sharing between participants in the education system and society as a whole is an issue under discussion in many OECD countries. It is especially relevant for pre-primary and tertiary education, for which full or nearly full public funding is less common.

As new client groups participate in a wider range of educational programmes and choose among more opportunities from increasing numbers of providers, governments are forging new partnerships to mobilise the necessary resources for education and to share costs and benefits more equitably. As a result, public funding more often provides only a part (albeit a very large part) of investment in education, and the role of private sources has become more important. Some stakeholders are concerned that this balance should not become so tilted as to discourage potential students to access to tertiary education. Thus, changes in a country's public/private funding shares can provide important information on changing patterns and levels of participation within its educational system.

Evidence and explanations

What this indicator does and does not cover

Governments can direct public funds to educational institutions or provide subsidies to private entities for the purpose of education. When reporting on the public and private proportions of educational expenditure, it is therefore important to distinguish between the initial sources of funds and the final direct purchasers of educational goods and services.

Initial public spending includes both direct public expenditure on educational institutions and transfers to the private sector. Initial private spending includes tuition fees and other student or household payments to educational institutions, minus support provided through public subsidies. Final public spending includes direct public purchases of educational resources and payments to educational institutions and other private entities. Final private spending includes tuition fees and other private payments to educational institutions.

Not all spending on instructional goods and services occurs within educational institutions. For example, families may purchase commercial textbooks and materials or seek private tutoring for their children outside educational institutions. At the tertiary level, students' living expenses and foregone earnings can also account for a significant proportion of the costs of education. All such expenditure outside educational institutions, even if publicly subsidised, is excluded from this indicator. Public subsidies for educational expenditure outside institutions are discussed in Indicators B4 and B5.

Public and private expenditure on educational institutions at all levels of education

Educational institutions are still mainly publicly funded, although there is a substantial and growing level of private funding at the tertiary level. On average in OECD countries, 85% of all funds for educational institutions come directly from public sources. In addition, 1.9% of funds are channeled to educational institutions via public subsidies to households (Table B3.1).

In all OECD countries for which comparable data are available, private funding on educational institutions represents around 15% of all funds, on average. This proportion varies widely

among countries and only nine OECD countries and two partner countries report a share of private funding above the OECD average. Nevertheless, in Australia, Canada and the United Kingdom, as well as in the partner country Israel, private funds constitute around one-quarter of all educational expenditure. They exceed 30% in Japan, Korea and the United States and the partner country Chile (Table B3.1).

In all countries for which comparable data are available, public funding increased between 2000 and 2006 for all levels of education combined. However, private spending increased even more in nearly three-quarters of these countries. As a result, the decrease in the share of public funding on educational institutions was more than 5 percentage points in Canada, Mexico, Portugal, the Slovak Republic and the United Kingdom. This decrease is mainly due to a significant increase in tuition fees charged by tertiary educational institutions over the period 2000-2006.

It is noteworthy that decreases in the share of public expenditure in total expenditure on educational institutions and, consequently increases in the share of private expenditure, have not generally gone hand in hand with cuts (in real terms) in public expenditure on educational institutions (Table B3.1). In fact, many OECD countries with the highest growth in private spending have also shown the highest increase in public funding of education. This indicates that an increase in private spending tends not to replace public investment but to complement it.

However, the share of private expenditure on educational institutions varies across countries and according to the level of education.

Public and private expenditure on educational institutions in pre-primary, primary, secondary and post-secondary non-tertiary education

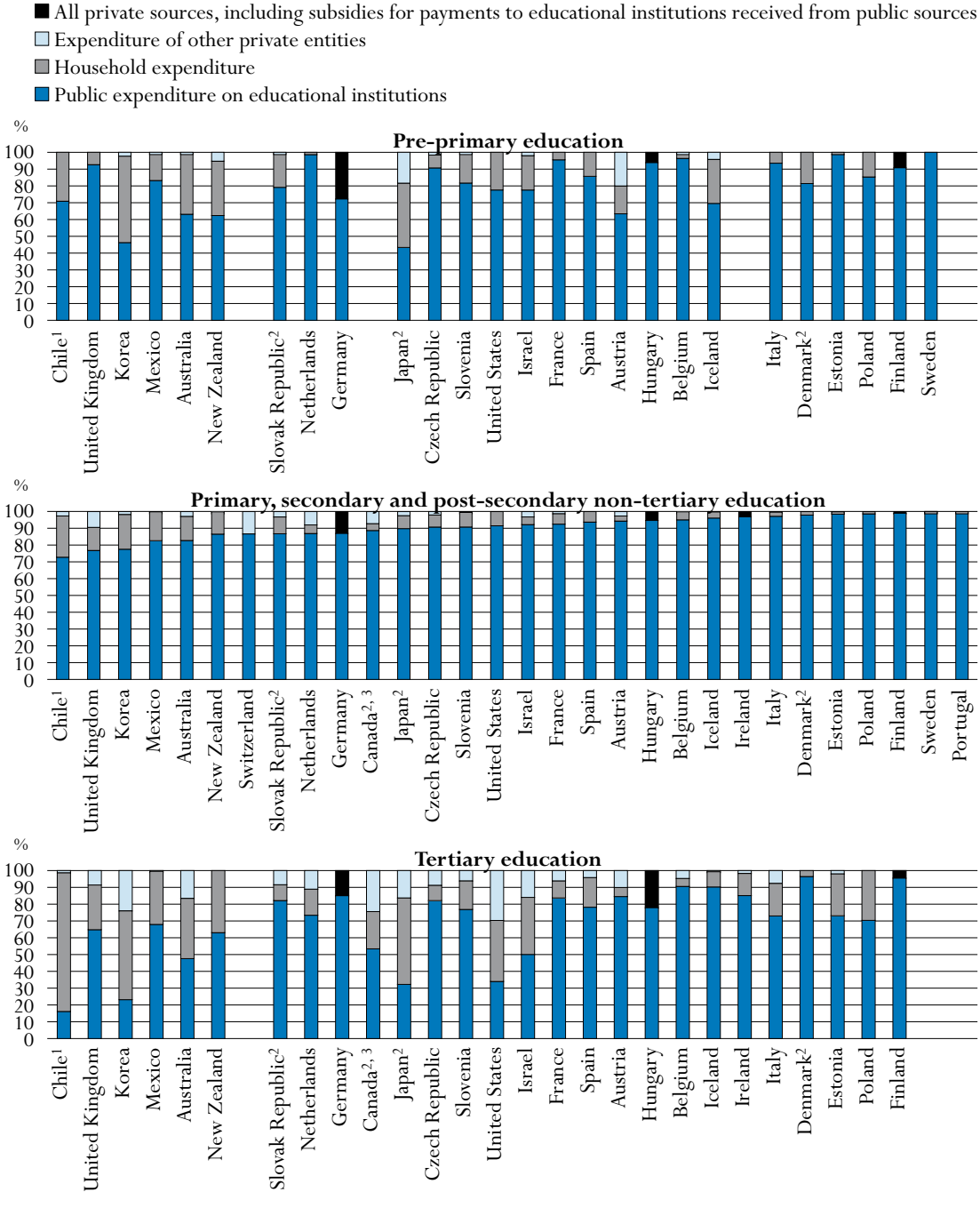
Investment in early childhood education is essential for building a strong foundation for lifelong learning and for ensuring equitable access to learning opportunities later in school. In pre-primary education, the private share of total payments to educational institutions is on average 19%, which is higher than the percentage for all levels of education combined. However, this proportion varies widely among countries, ranging from 5% or less in Belgium, France, the Netherlands and Sweden and the partner country Estonia, to well over 25% in Australia, Austria, Germany, Iceland and New Zealand and the partner country Chile, to over 50% in Japan and Korea (Table B3.2a).

Public funding dominates the primary, secondary and post-secondary non-tertiary levels of education in OECD and partner countries. Among OECD countries it reaches 91% on average. Nevertheless, private funding exceeds 10% in Australia, Canada, Germany, Japan, Korea, Mexico, the Netherlands, New Zealand, the Slovak Republic, Switzerland and the United Kingdom, and the partner country Chile (Table B3.2a and Chart B3.2). The importance of public funding may reflect the fact that primary, secondary and post-secondary non-tertiary education are usually perceived as a public good. At these levels in most countries, the largest share of private expenditure is household expenditure and goes mainly towards tuition. In Germany, the Netherlands and Switzerland, however, most private expenditure is in the form of contributions from the business sector to the dual system of apprenticeship at the upper secondary and post-secondary non-tertiary levels (see Box B3.1).

B3

Chart B3.2. Distribution of public and private expenditure on educational institutions (2006)

By level of education



1. Year of reference 2007.
2. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
3. Year of reference 2005.

Countries are ranked in ascending order of the proportion of public expenditure on educational institutions in primary, secondary and post-secondary non-tertiary education.

Source: OECD. Table B3.2a and Table B3.2b. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664257001651

Box 3.1. Private expenditure of the work-based component of educational programmes

Many countries have some form of combined school and work-based educational programmes in their educational system (*e.g.* apprenticeship programmes). However, a quick survey (undertaken by the Netherlands) among countries with some form of dual educational systems has shown that 9 out of 14 OECD countries (Australia, Austria, Flemish Community of Belgium, the Czech Republic, Denmark, France, Hungary, Iceland and Norway), are not able to include the private expenditure of enterprises relating to these programmes in the financial indicators published in *Education at a Glance*. Exceptions to this pattern are Finland, Germany, the Netherlands (for the first time this year), Switzerland and the United Kingdom.

The size of the work-based component varies significantly between countries and can have a significant impact on total expenditure in some of them. Among the countries with available data, in Germany, the Netherlands and Switzerland, a significant proportion of all pupils (*e.g.* about 20% in the Netherlands, 50% in Germany and 60% in Switzerland) are enrolled in combined school and work-based programmes and the corresponding expenditure represent between 0.3% and 0.5% of GDP (see Indicator B2). The international comparability of the data seems to be quite good for these three countries. Further research needs to be done on this point including also other countries and taking into account the differences that exist between countries in the way this type of education is organised and funded.

These programmes in the Netherlands are initial vocational training programmes and have an impact especially on expenditure reported for secondary education. The work-based component of these programmes varies in size – accounting for between 20% and 80% of the total curriculum, and takes place in private enterprises and non-profit organisations. Expenditure on training of students in these firms and organisations is regarded as private expenditure on education. It is limited to expenditure on training per se (*e.g.* compensation of instructors and cost of instructional materials and equipment). Specific expenditure to train company instructors is also included. It does not include salaries or other compensation paid to the students or apprentices since it is assumed that these compensate for the productive capacity of the students. The latter corresponds to the UOE guidelines.

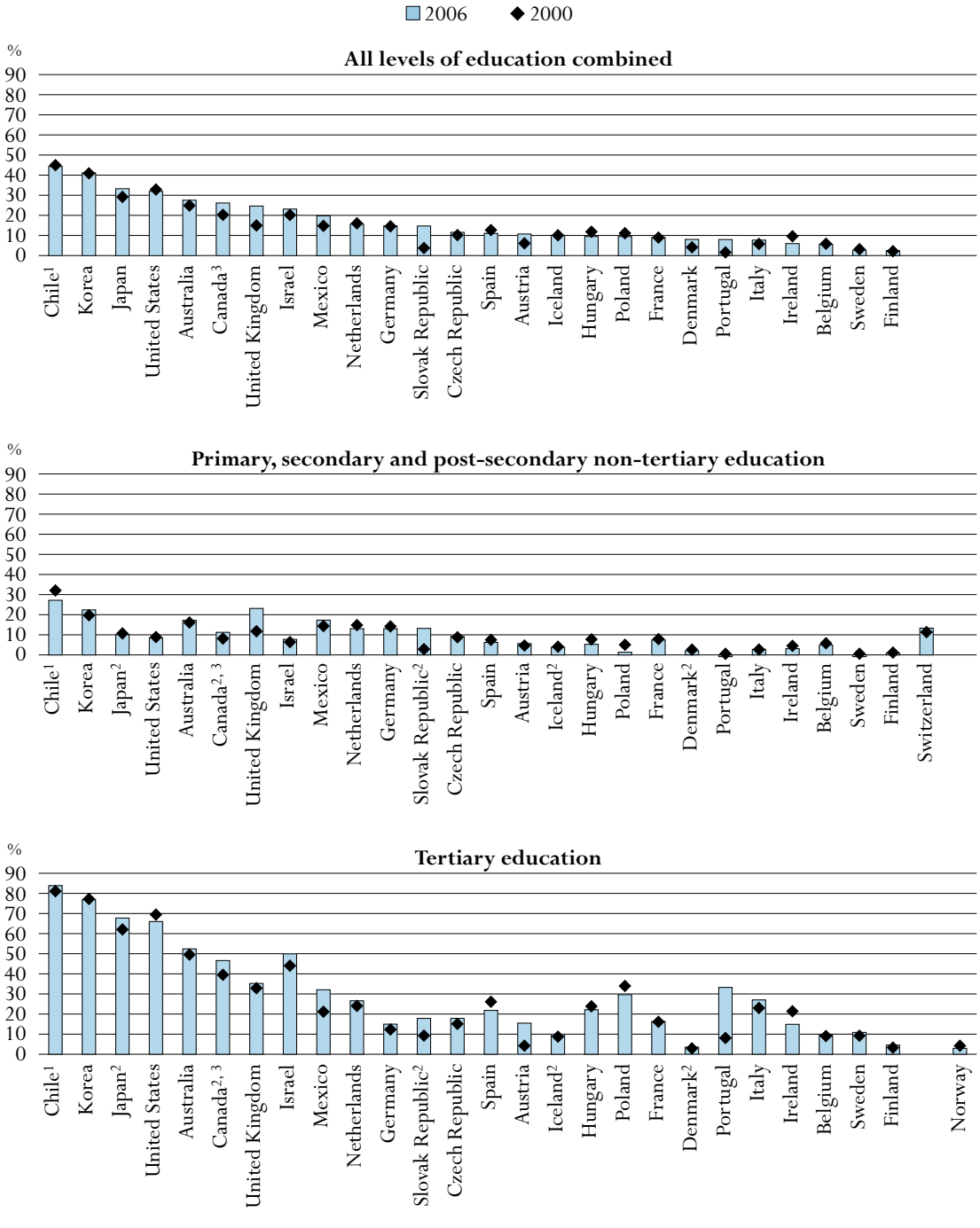
For more information on vocational programmes see Indicator C1.

Between 2000 and 2006, 15 out of the 27 OECD and partner countries for which comparable data are available showed a small decrease in the share of public funding at primary, secondary and post-secondary non-tertiary levels. Among these countries, the increase in the private share is 2 percentage points or more in Canada (7.6% to 11.3%), Korea (19.2% to 22.4%), Mexico (13.9% to 17.3%), the Slovak Republic (2.4% to 13.2%), Switzerland (10.8% to 13.4%) and the United Kingdom (11.3% to 23.2%). Funding shifts in the opposite direction, towards public funding, are evident in the other nine countries; however, this share increased by 2 percentage points or more only in Hungary (from 92.7% to 94.7%) and Poland (95.4% to 98.6%) and the partner country Chile (68.4% to 72.8%) (Chart B3.3 and Table B3.2a).

B3

Chart B3.3. Share of private expenditure on educational institutions (2000, 2006)

Percentage



1. Year of reference 2007 instead of 2006.
2. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
3. Year of reference 2005 instead of 2006.

Countries are ranked in descending order of the share of private expenditure on educational institutions in 2006 for all levels of education.

Source: OECD. Table B3.1, Table B3.2a and Table B3.2b. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664257001651

In spite of such differences in the share of public funding at primary, secondary and post-secondary non-tertiary levels between 2000 and 2006, public expenditure on educational institutions increased in all countries with comparable data. In contrast with general trends, increases in public expenditure have been accompanied by decreases in private expenditure in Germany, Poland, Sweden and the partner country Chile, for all levels of education combined. However, the share of private expenditure on educational institutions represents less than 5% in 2006 in all of these countries except Germany and the partner country Chile.

Public and private expenditure on educational institutions in tertiary institutions

At the tertiary level, high private returns in the form of better employment and income opportunities (see Indicator A7) suggest that a greater contribution by individuals and other private entities to the costs of tertiary education may be justified so long as governments can ensure that accessibility of funding for students irrespective of their economic background (see Indicator B5). In all OECD and partner countries, the private proportion of educational expenditure is far higher at the tertiary level than at the primary, secondary and post-secondary non-tertiary levels. It represents on average 27% of total expenditure on educational institutions at this level (Table B3.2a and Table B3.2b).

The proportion of expenditure on tertiary institutions covered by individuals, businesses and other private sources, including subsidised private payments, ranges from less than 5% in Denmark, Finland and Norway, to more than 40% in Australia, Canada, Japan and the United States and the partner country Israel, and to over 75% in Korea and the partner country Chile (Chart B3.2 and Table B3.2b). In Korea, around 80% of tertiary students are enrolled in private universities, where more than 70% of budgets are from tuition fees. The contribution of private entities other than households to the financing of educational institutions is on average higher for tertiary education than for other levels of education.

In one-fifth of OECD and partner countries – Australia, Austria, Canada, Japan, Korea, the Netherlands, Sweden and the United States, and the partner country Israel – the proportion of expenditure on tertiary institutions covered by private entities other than households represents 10% or more.

In many OECD countries, the growth in tertiary participation (see Indicator C1) represents a response to strong demand, both individual and social. In 2006, the share of public funding at the tertiary level represented 73% on average in OECD countries. On average among the 18 OECD countries for which trend data are available for all reference years, the share of public funding in tertiary institutions decreased slightly from 78% in 1995 to 76% in 2000 and to 72% in 2005 and 2006. This trend is apparent primarily in non-European countries in which tuition fees are generally higher and enterprises participate more actively, largely through grants to tertiary institutions (Table B3.3, Chart B3.3 and Indicator B5).

In 12 out of the 22 OECD and partner countries with comparable data for 1995 and 2006, the private share of educational expenditures increased by 3 percentage points or more. This increase exceeds 9 percentage points in Australia, Austria, Italy, Mexico, Portugal, the Slovak Republic and the United Kingdom, as well as the partner countries Chile and Israel. Only the Czech Republic and Ireland – and to a lesser extent Norway and Spain – show a significant decrease in the private share allocated to tertiary educational institutions (Table B3.3). In Australia, the main

reason for the increase in the private share of spending on tertiary institutions between 1995 and 2006 was changes to the Higher Education Contribution Scheme/Higher Education Loan Programme (HECS/ HELP) implemented in 1997. In Ireland, tuition fees in tertiary first degree programmes were gradually eliminated over the last decade, leading to decrease in the private share of spending at this level (for more details see Indicator B5 and Annex 3).

Increases in private expenditure on educational institutions have generally gone hand in hand with increases (in real terms) in public expenditure on educational institutions at the tertiary level, as they have for all levels of education combined. Public investment in tertiary education has increased in all OECD and partner countries for which 2000 to 2006 data are available except Japan and the partner country Chile, regardless of changes in private spending (Table B3.2b). Notably, in 6 out of the 11 OECD countries with the highest increases in public expenditure on tertiary education – the Czech Republic, Hungary, Iceland, Poland, the Slovak Republic and Switzerland –, tertiary institutions charge low or no tuition fees and tertiary attainment is relatively low (see Indicators A1 and B5). By contrast, in Korea, New Zealand, the United Kingdom and the United States where public spending has also increased significantly, there is a high reliance on private funding of tertiary education (Table B3.2b).

Definitions and methodologies

Data refer to the financial year 2006 and are based on the UOE data collection on education statistics administered by the OECD in 2008 (for details see Annex 3 at *www.oecd.org/edu/eag2009*).

The public and private proportions of expenditure on educational institutions are the percentages of total spending originating in, or generated by, the public and private sectors. Private spending includes all direct expenditure on educational institutions, whether partially covered by public subsidies or not. Public subsidies attributable to households, included in private spending, are shown separately.

A portion of the budgets of educational institutions is related to ancillary services offered to students, including student welfare services (student meals, housing and transport). Part of the cost of these services is covered by fees collected from students and is included in the indicator.

Other private entities include private businesses and non-profit organisations, *e.g.* religious organisations, charitable organisations and business and labour associations. Expenditure by private companies on the work-based element of school and work-based training of apprentices and students is also taken into account.

The data on expenditure for 1995 and 2000 were obtained by a special survey updated in 2008, in which expenditure for 1995 and 2000 were adjusted to the methods and definitions used in the current UOE data collection.

Table B3.1.

Relative proportions of public and private expenditure on educational institutions for all levels of education (2000, 2006)

Distribution of public and private sources of funds for educational institutions after transfers from public sources, by year

		2006					2000		Index of change between 2000 and 2006 in expenditure on educational institutions	
			Private sources							
		Public sources	Household expenditure	Expenditure of other private entities	All private sources[1]	Private: of which, subsidised	Public sources	All private sources[1]	Public sources	All private sources[1]
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	Australia	**72.4**	20.7	6.8	**27.6**	0.2	75.3	24.7	115	134
	Austria	**89.2**	4.8	6.0	**10.8**	4.4	94.0	6.0	106	202
	Belgium	**94.4**	4.5	1.1	**5.6**	1.7	94.3	5.7	112	109
	Canada[2]	**73.8**	11.7	14.5	**26.2**	m	79.9	20.1	108	152
	Czech Republic	**88.4**	7.9	3.7	**11.6**	m	89.9	10.1	145	170
	Denmark	**91.9**	4.5	3.5	**8.1**	m	96.0	4.0	115	242
	Finland	**97.5**	x(4)	x(4)	**2.5**	n	98.0	2.0	122	153
	France	**90.9**	6.8	2.3	**9.1**	1.6	91.2	8.8	103	107
	Germany	**85.2**	x(4)	x(4)	**14.8**	m	85.6	14.4	103	107
	Greece	**m**	m	m	**m**	m	93.8	6.2	m	m
	Hungary	**90.5**	x(4)	x(4)	**9.5**	n	88.3	11.7	152	121
	Iceland	**89.8**	8.9	1.3	**10.2**	m	90.0	10.0	144	147
	Ireland	**94.0**	5.6	0.4	**6.0**	m	90.5	9.5	151	92
	Italy	**92.3**	6.0	1.7	**7.7**	1.2	94.3	5.7	111	141
	Japan	**66.7**	21.8	11.5	**33.3**	m	71.0	29.0	101	123
	Korea	**58.8**	31.5	9.6	**41.2**	2.0	59.2	40.8	151	153
	Luxembourg	**m**	m	m	**m**	m	m	m	m	m
	Mexico	**80.2**	19.6	0.2	**19.8**	1.0	85.3	14.7	123	176
	Netherlands	**84.3**	7.5	8.2	**15.7**	1.7	84.1	15.9	120	118
	New Zealand	**79.9**	19.7	0.4	**20.1**	m	m	m	111	m
	Norway	**m**	m	m	**m**	m	95.0	5.0	120	m
	Poland	**90.5**	9.5	m	**9.5**	m	89.0	11.0	128	109
	Portugal	**92.0**	6.7	1.4	**8.0**	m	98.6	1.4	101	608
	Slovak Republic	**85.2**	10.7	4.0	**14.8**	0.2	96.4	3.6	127	585
	Spain	**88.9**	10.1	1.0	**11.1**	0.4	87.4	12.6	121	105
	Sweden	**97.3**	0.1	2.7	**2.7**	n	97.0	3.0	118	106
	Switzerland	**m**	m	m	**m**	m	92.1	7.9	112	138
	Turkey	**m**	m	m	**m**	m	98.6	1.4	m	m
	United Kingdom	**75.3**	16.0	8.7	**24.7**	12.3	85.2	14.8	117	220
	United States	**68.0**	20.3	11.8	**32.0**	m	67.3	32.7	120	116
	OECD average	*84.7*	~	~	*15.3*	*1.9*	~	~	*121*	*177*
	EU19 average	*89.9*	~	~	*10.1*	*2.1*	~	~	*121*	*194*
Partner countries	Brazil	**m**	m	m	**m**	m	m	m	157	m
	Chile[3]	**55.6**	42.4	2.0	**44.4**	1.8	55.2	44.8	114	112
	Estonia	**93.0**	6.5	0.5	**7.0**	1.3	m	m	m	m
	Israel	**76.8**	16.3	6.8	**23.2**	2.2	80.0	20.0	110	133
	Russian Federation	**m**	m	m	**m**	a	m	m	190	m
	Slovenia	**87.0**	11.4	1.6	**13.0**	0.7	m	m	m	m

1. Including subsidies attributable to payments to educational institutions received from public sources.
2. Year of reference 2005 instead of 2006.
3. Year of reference 2007 instead of 2006.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664257001651

B3

Table B3.2a.

Relative proportions of public and private expenditure on educational institutions, as a percentage, by level of education (2000, 2006)

Distribution of public and private sources of funds for educational institutions after transfers from public sources, by year

	Pre-primary education (for children 3 years and older)					Primary, secondary and post-secondary non-tertiary education								
	2006					2006					2000		Index of change between 2000 and 2006 in expenditure on educational institutions	
		Private sources					Private sources							
	Public sources	Household expenditure	Expenditure of other private entities	All private sources[1]	Private: of which, subsidised	Public sources	Household expenditure	Expenditure of other private entities	All private sources[1]	Private: of which, subsidised	Public sources	All private sources[1]	Public sources	All private sources[1]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OECD countries														
Australia	**63.1**	36.5	0.4	**36.9**	n	**82.8**	14.3	3.0	**17.2**	n	84.4	15.6	114	128
Austria	**63.4**	16.6	20.0	**36.6**	17.0	**94.3**	3.0	2.6	**5.7**	1.1	95.8	4.2	104	144
Belgium	**96.4**	3.5	0.2	**3.6**	0.3	**95.1**	4.8	0.1	**4.9**	1.2	94.7	5.3	110	102
Canada[2, 3]	**x(6)**	x(7)	x(8)	**x(9)**	x(6)	**88.7**	4.0	7.3	**11.3**	x(6)	92.4	7.6	114	176
Czech Republic	**90.7**	7.7	1.6	**9.3**	m	**90.8**	7.2	2.1	**9.2**	m	91.7	8.3	136	153
Denmark[3]	**81.4**	18.6	n	**18.6**	m	**97.9**	2.1	m	**2.1**	m	97.8	2.2	119	115
Finland	**90.8**	x(4)	x(4)	**9.2**	n	**99.0**	x(9)	x(9)	**1.0**	n	99.3	0.7	125	185
France	**95.5**	4.5	n	**4.5**	n	**92.5**	6.2	1.3	**7.5**	1.6	92.6	7.4	101	102
Germany	**72.2**	x(4)	x(4)	**27.8**	a	**87.0**	x(9)	x(9)	**13.0**	m	86.3	13.7	101	96
Greece	m	m	m	m	m	**m**	m	n	**m**	m	91.7	8.3	m	m
Hungary	**93.8**	x(4)	x(4)	**6.2**	n	**94.7**	x(9)	x(9)	**5.3**	n	92.7	7.3	155	110
Iceland	**69.6**	26.2	4.2	**30.4**	n	**96.1**	3.6	0.2	**3.9**	n	96.4	3.6	142	152
Ireland	**m**	m	m	**m**	m	**96.9**	x(9)	x(9)	**3.1**	m	96.0	4.0	167	128
Italy	**93.5**	6.5	n	**6.5**	n	**97.2**	2.4	0.4	**2.8**	0.3	97.8	2.2	115	148
Japan[3]	**43.4**	38.3	18.4	**56.6**	m	**89.9**	7.6	2.5	**10.1**	m	89.8	10.2	101	101
Korea	**46.3**	51.5	2.3	**53.7**	14.1	**77.6**	20.6	1.8	**22.4**	1.1	80.8	19.2	149	181
Luxembourg	**m**	m	m	**m**	a	**m**	m	m	**m**	m	m	m	m	m
Mexico	**83.2**	16.7	0.1	**16.8**	0.2	**82.7**	17.2	0.1	**17.3**	1.3	86.1	13.9	120	156
Netherlands	**98.6**	1.4	a	**1.4**	1.0	**86.9**	5.1	7.9	**13.1**	2.2	85.7	14.3	123	110
New Zealand	**62.4**	32.4	5.3	**37.6**	m	**86.6**	13.3	0.1	**13.4**	m	m	m	106	m
Norway	**90.5**	9.5	m	**9.5**	n	**m**	m	m	**m**	m	99.0	1.0	110	m
Poland	**85.3**	14.7	m	**14.7**	n	**98.6**	1.4	m	**1.4**	m	95.4	4.6	122	35
Portugal	**m**	m	m	**m**	m	**99.9**	0.1	m	**0.1**	m	99.9	0.1	99	93
Slovak Republic[3]	**79.2**	20.2	0.6	**20.8**	0.2	**86.8**	10.0	3.2	**13.2**	0.2	97.6	2.4	124	776
Spain	**85.7**	14.3	m	**14.3**	n	**93.7**	6.3	m	**6.3**	m	93.0	7.0	113	100
Sweden	**100.0**	n	n	**n**	n	**99.9**	0.1	a	**0.1**	a	99.9	0.1	114	95
Switzerland	**m**	m	m	**m**	a	**86.6**	n	13.4	**13.4**	0.7	89.2	10.8	109	138
Turkey	**m**	m	m	**m**	m	**m**	m	m	**m**	a	m	m	144	m
United Kingdom	**92.7**	7.3	n	**7.3**	n	**76.8**	13.7	9.5	**23.2**	15.8	88.7	11.3	115	273
United States	**77.6**	22.4	a	**22.4**	a	**91.5**	8.5	a	**8.5**	a	91.6	8.4	117	118
OECD average	*80.7*	~	~	*19.3*	*1.6*	*91.2*	~	~	*8.8*	*1.5*	~	~	*120*	*157*
EU19 average	*88.0*	~	~	*12.0*	*2.6*	*93.4*	~	~	*6.6*	*0.6*	~	~	*122*	*170*
Partner countries														
Brazil	**m**	m	m	**m**	m	**m**	m	m	**m**	m	m	m	171	m
Chile[4]	**70.9**	29.1	m	**29.1**	n	**72.8**	24.6	2.6	**27.2**	0.1	68.4	31.6	112	91
Estonia	**98.8**	1.2	n	**1.2**	m	**98.5**	1.4	0.1	**1.5**	m	m	m	140	m
Israel	**77.6**	20.5	2.0	**22.4**	n	**92.2**	4.6	3.2	**7.8**	1.5	94.1	5.9	111	148
Russian Federation	**m**	m	m	**m**	a	**m**	m	m	**m**	a	m	m	174	m
Slovenia	**81.7**	18.2	0.1	**18.3**	n	**90.8**	8.7	0.5	**9.2**	1.0	m	m	m	m

1. Including subsidies attributable to payments to educational institutions received from public sources. To calculate private funds net of subsidies, subtract public subsidies (columns 5, 10) from private funds (columns 4, 9). To calculate total public funds, including public subsidies, add public subsidies (columns 5, 10) to direct public funds (columns 1, 6).
2. Year of reference 2005 instead of 2006.
3. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
4. Year of reference 2007 instead of 2006.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664257001651

Table B3.2b.

Relative proportions of public and private expenditure on educational institutions, as a percentage, for tertiary education (2000, 2006)

Distribution of public and private sources of funds for educational institutions after transfers from public sources, by year

	Tertiary education								
	2006					2000		Index of change between 2000 and 2006 in expenditure on educational institutions	
		Private sources							
	Public sources	Household expenditure	Expenditure of other private entities	All private sources[1]	Private: of which, subsidised	Public sources	All private sources[1]	Public sources	All private sources[1]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries									
Australia	**47.6**	35.8	16.6	**52.4**	0.6	51.0	49.0	122	139
Austria	**84.5**	5.4	10.1	**15.5**	8.9	96.3	3.7	122	580
Belgium	**90.6**	4.7	4.7	**9.4**	4.0	91.5	8.5	109	122
Canada[2, 3]	**53.4**	22.2	24.4	**46.6**	0.6	61.0	39.0	108	148
Czech Republic	**82.1**	9.0	8.9	**17.9**	m	85.4	14.6	183	233
Denmark[3]	**96.4**	3.6	n	**3.6**	n	97.6	2.4	116	174
Finland	**95.5**	x(4)	x(4)	**4.5**	n	97.2	2.8	116	195
France	**83.7**	10.1	6.2	**16.3**	2.4	84.4	15.6	109	114
Germany	**85.0**	x(4)	x(4)	**15.0**	m	88.2	11.8	102	135
Greece	**m**	m	m	**m**	m	99.7	0.3	m	m
Hungary	**77.9**	x(4)	x(4)	**22.1**	n	76.7	23.3	135	127
Iceland	**90.2**	9.1	0.7	**9.8**	m	91.8	8.2	137	165
Ireland	**85.1**	13.2	1.7	**14.9**	m	79.2	20.8	119	79
Italy	**73.0**	19.3	7.7	**27.0**	5.0	77.5	22.5	108	138
Japan[3]	**32.2**	51.4	16.4	**67.8**	m	38.5	61.5	95	125
Korea	**23.1**	52.8	24.0	**76.9**	2.1	23.3	76.7	143	144
Luxembourg	**m**	m	m	**m**	m	m	m	m	m
Mexico	**67.9**	31.6	0.4	**32.1**	0.9	79.4	20.6	118	214
Netherlands	**73.4**	15.5	11.1	**26.6**	0.8	76.5	23.5	111	131
New Zealand	**63.0**	37.0	m	**37.0**	m	m	m	131	m
Norway	**97.0**	3.0	m	**3.0**	m	96.3	3.7	111	88
Poland	**70.4**	29.6	m	**29.6**	m	66.6	33.4	166	139
Portugal	**66.7**	27.6	5.7	**33.3**	m	92.5	7.5	102	624
Slovak Republic[3]	**82.1**	9.4	8.5	**17.9**	0.5	91.2	8.8	152	345
Spain	**78.2**	17.6	4.2	**21.8**	1.8	74.4	25.6	125	102
Sweden	**89.1**	n	10.9	**10.9**	a	91.3	8.7	114	146
Switzerland	**m**	m	m	**m**	a	m	m	135	m
Turkey	**m**	m	m	**m**	m	95.4	4.6	137	m
United Kingdom	**64.8**	26.6	8.6	**35.2**	n	67.7	32.3	138	157
United States	**34.0**	36.3	29.7	**66.0**	m	31.1	68.9	133	117
OECD average	***72.6***	~	~	***27.4***	***1.6***	***77.8***	***22.2***	***125***	***187***
EU19 average	***81.1***	~	~	***18.9***	***1.8***	***85.2***	***14.8***	***125***	***208***
Partner countries									
Brazil	**m**	m	m	**m**	m	m	m	124	m
Chile[4]	**16.1**	82.5	1.4	**83.9**	5.9	19.5	80.5	93	117
Estonia	**73.1**	24.9	2.0	**26.9**	6.0	m	m	121	m
Israel	**50.1**	34.0	16.0	**49.9**	5.3	56.5	43.5	100	129
Russian Federation	**m**	m	m	**m**	m	m	m	258	m
Slovenia	**76.9**	16.9	6.2	**23.1**	n	m	m	m	m

1. Including subsidies attributable to payments to educational institutions received from public sources. To calculate private funds net of subsidies, subtract public subsidies (column 5) from private funds (column 4). To calculate total public funds, including public subsidies, add public subsidies (column 5) to direct public funds (column 1).
2. Year of reference 2005 instead of 2006.
3. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
4. Year of reference 2007 instead of 2006.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664257001651

B3

Table B3.3.

Trends in relative proportions of public expenditure[1] on educational institutions and index of change between 1995 and 2006 (2000=100), for tertiary education (1995, 2000, 2002, 2003, 2004, 2005, 2006)

		Share of public expenditure on educational institutions (%)							Index of change between 1995 and 2006 in public expenditure on educational institutions (2000=100, constant prices)						
		1995	2000	2002	2003	2004	2005	2006	1995	2000	2002	2003	2004	2005	2006
OECD countries	Australia	64.8	51.0	48.7	48.0	47.2	47.8	47.6	115	100	105	107	111	115	122
	Austria	96.1	96.3	91.6	92.7	93.7	92.9	84.5	96	100	103	109	120	129	122
	Belgium	m	91.5	86.1	86.7	90.4	90.6	90.6	m	100	98	97	99	101	109
	Canada[2]	56.6	61.0	56.4	m	55.1	53.4	m	69	100	98	m	105	108	m
	Czech Republic	71.5	85.4	87.5	83.3	84.7	81.2	82.1	86	100	122	138	145	147	183
	Denmark[2]	99.4	97.6	97.9	96.7	96.7	96.7	96.4	93	100	123	113	120	115	116
	Finland	97.8	97.2	96.3	96.4	96.3	96.1	95.5	91	100	104	108	114	114	116
	France	85.3	84.4	83.8	83.8	83.8	83.6	83.7	93	100	103	104	105	106	109
	Germany	89.2	88.2	m	m	m	85.3	85.0	96	100	m	m	m	102	102
	Greece[2]	m	99.7	99.6	97.9	97.9	96.7	m	63	100	154	194	195	228	m
	Hungary	80.3	76.7	78.7	78.5	79.0	78.5	77.9	78	100	124	140	122	129	135
	Iceland[2]	m	91.8	91.4	90.1	90.3	90.5	90.2	m	100	118	121	128	142	137
	Ireland	69.7	79.2	85.8	83.8	82.6	84.0	85.1	49	100	103	98	102	109	119
	Italy	82.9	77.5	78.6	72.1	69.4	69.6	73.0	85	100	111	100	101	100	108
	Japan[2]	35.1	38.5	35.3	36.6	36.6	33.7	32.2	80	100	94	101	102	93	95
	Korea	m	23.3	14.9	23.2	21.0	24.3	23.1	m	100	68	127	109	136	143
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	77.4	79.4	71.0	69.1	68.9	69.0	67.9	75	100	119	113	111	119	118
	Netherlands	79.4	76.5	74.9	74.4	75.0	73.3	73.4	99	100	103	105	108	111	111
	New Zealand	m	m	62.5	61.5	60.8	59.7	63.0	104	100	112	117	114	120	131
	Norway	93.7	96.3	96.3	96.7	m	m	97.0	107	100	117	122	124	117	111
	Poland	m	66.6	69.7	69.0	72.9	74.0	70.4	89	100	148	151	180	193	166
	Portugal	96.5	92.5	91.3	91.5	86.0	68.1	66.7	76	100	99	109	89	101	102
	Slovak Republic[2]	95.4	91.2	85.2	86.2	81.3	77.3	82.1	86	100	112	126	150	127	152
	Spain	74.4	74.4	76.3	76.9	75.9	77.9	78.2	72	100	111	117	119	119	125
	Sweden	93.6	91.3	90.0	89.0	88.4	88.2	89.1	84	100	107	111	113	111	114
	Switzerland	m	m	m	m	m	m	m	74	100	124	131	131	133	135
	Turkey	96.3	95.4	90.1	95.2	90.0	m	m	55	100	113	119	110	m	137
	United Kingdom	80.0	67.7	72.0	70.2	69.6	66.9	64.8	115	100	123	122	123	m	138
	United States	37.4	31.1	39.5	38.3	35.4	34.7	34.0	85	100	119	130	131	132	133
	OECD average	*79.7*	*77.8*	*76.0*	*76.5*	*74.2*	*72.8*	*73.3*	*85*	*100*	*112*	*120*	*121*	*124*	*125*
	OECD average for countries with data available for all reference years	*78.2*	*75.9*	*75.7*	*74.8*	*73.8*	*71.9*	*71.6*	*87*	*100*	*112*	*117*	*119*	*122*	*127*
	EU19 average for countries with data available for all reference years	*85.1*	*83.9*	*84.0*	*83.0*	*82.0*	*79.8*	*79.7*	*85*	*100*	*112*	*117*	*120*	*124*	*131*
Partner countries	Brazil	m	m	m	m	m	m	m	78	100	102	109	101	118	124
	Chile[3]	25.1	19.5	19.3	17.0	15.5	15.9	16.1	78	100	112	102	99	92	93
	Estonia	m	m	m	m	m	69.9	73.1	71	100	m	m	112	112	121
	Israel	59.2	56.5	53.4	59.3	49.6	48.7	50.1	81	100	96	108	93	95	100
	Russian Federation	m	m	m	m	m	m	m	m	100	143	169	173	225	258
	Slovenia	m	m	m	m	75.7	76.5	76.9	m	100	m	m	m	m	m

1. Excluding international funds in public and total expenditure on educational institutions.
2. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
3. Year of reference 2007 instead of 2006.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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INDICATOR B4

WHAT IS THE TOTAL PUBLIC SPENDING ON EDUCATION?

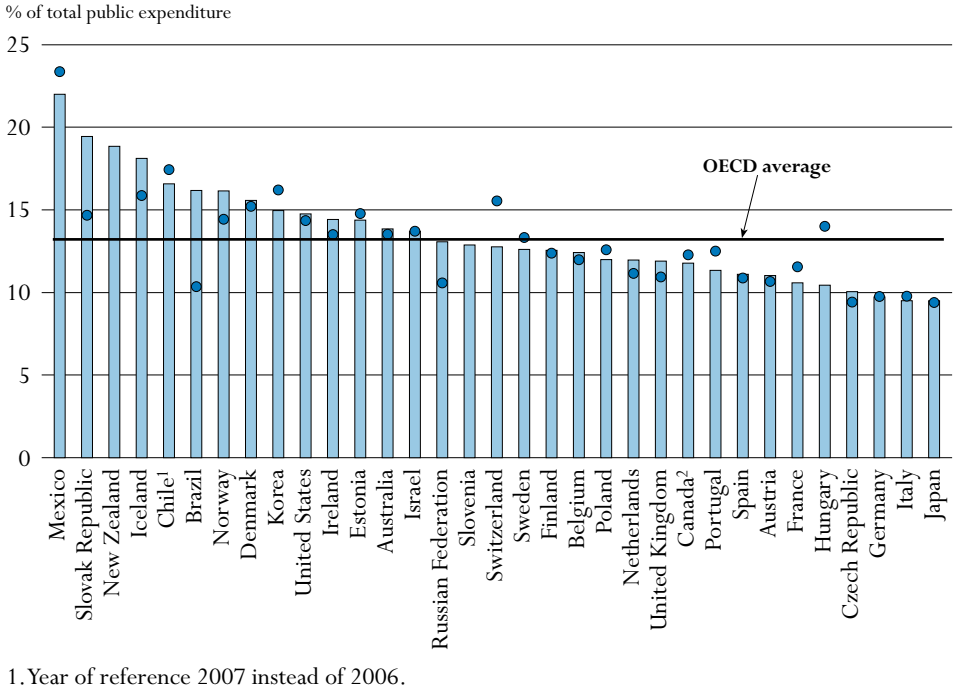
Public expenditure on education as a percentage of total public expenditure indicates the value placed on education relative to other public areas of investment, such as health care, social security, defence and security. It provides an important context for the other indicators on education expenditure, particularly for Indicator B3 (the public and private shares of educational expenditure) and is the quantification of an important policy lever in its own right.

Key results

Chart B4.1. Total public expenditure on education as a percentage of total public expenditure (2000, 2006)

The chart shows direct public expenditure on educational institutions plus public subsidies to households (including subsidies for living costs) and other private entities, as a percentage of total public expenditure, by year. It must be recalled that public sectors differ in terms of their size and breadth of responsibility from country to country.

On average, OECD countries devote 13.3% of total public expenditure to education, but values for individual countries range from 10% or less in Germany, Italy and Japan, to 22% in Mexico.



1. Year of reference 2007 instead of 2006.
2. Year of reference 2005 instead of 2006.

Countries are ranked in descending order of total public expenditure on education at all levels of education as a percentage of total public expenditure in 2006.

Source: OECD. Table B4.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Other highlights of this indicator

- Public funding of education is a social priority, even in OECD countries with little public involvement in other areas.
- Between 1995 and 2006, total public budgets as a percentage of GDP tended to increase slightly. Education took a growing share of total public expenditure in most countries, and on average, it grew as fast as GDP. In Denmark, Ireland, the Netherlands, New Zealand, the Slovak Republic, the United States and the partner countries Brazil and Chile, there have been particularly significant shifts in public funding in favour of education.
- The main increase in public expenditure on education relative to total public spending took place between 1995 and 2000 (0.9 percentage point), while from 2000 to 2006, public expenditure on education as a percentage of total public expenditure increased by 0.3 percentage point.
- In OECD countries, public funding of primary, secondary and post-secondary non-tertiary education is on average about three times that of tertiary education, mainly due to near universal enrolment rates below tertiary education, but also because the private share tends to be greater at the tertiary level. This ratio varies from less than double in Canada, Finland and Norway to five times in Korea. The latter figure is indicative of the relatively high proportion of private funds going to tertiary education in this country.

Policy context

If the public benefits from a particular service are greater than the private benefits, markets alone may fail to provide these services adequately and governments may need to become involved. Education is one area where all governments intervene to fund or direct the provision of services. As there is no guarantee that markets will provide equal access to educational opportunities, government funding of educational services ensures that education is not beyond the reach of some members of society.

This indicator focuses on public expenditure on education but also evaluates how public expenditure has changed over time. Since the second half of the 1990s, most OECD countries have made serious efforts to consolidate public budgets. Education has had to compete for public financial support with a wide range of other government-funded areas. To track this evolution, the indicator evaluates the change in educational expenditure in absolute terms and relative to changes in the size of total public budgets.

Evidence and explanations

What this indicator does and does not cover

This indicator shows total public expenditure on education, which includes direct public expenditure on educational institutions as well as public subsidies to households (*e.g.* scholarships and loans to students for tuition fees and student living costs) and to other private entities for education (*e.g.* subsidies to companies or labour organisations that operate apprenticeship programmes). Unlike the preceding indicators from this chapter, this indicator also includes public subsidies that are not attributable to household payments for educational institutions, such as subsidies for student living costs.

OECD countries differ in the ways in which they use public money for education. Public funds may flow directly to schools or may be channelled to institutions via government programmes or via households; they may also be restricted to the purchase of educational services or be used to support student living costs.

Total public expenditure on all services, excluding education, includes expenditure on debt servicing (*e.g.* interest payments), which is not included in public expenditure on education. The reason for this exclusion is that some countries cannot separate interest payment outlays for education from those for other services. This means that public expenditure on education as a percentage of total public expenditure may be underestimated in countries where interest payments represent a large proportion of total public expenditure on all services.

Finally, it is important to examine public investment in education in conjunction with private investment, as shown in Indicator B3 to get a full picture of total investment in education.

Overall level of public resources invested in education

On average, OECD countries devoted 13.3% of total public expenditure to education in 2006. However, the share of educational expenditure for individual countries range from 10% or less in Germany, Italy and Japan to 22% in Mexico (Chart B4.1). As in the case of spending on education in relation to GDP per capita, these figures must be interpreted in the light of student demography and enrolment rates.

The public-sector proportion of funding of the different levels of education also varies widely among OECD countries. In 2006, OECD and partner countries allocated between 6.3% (Germany) and

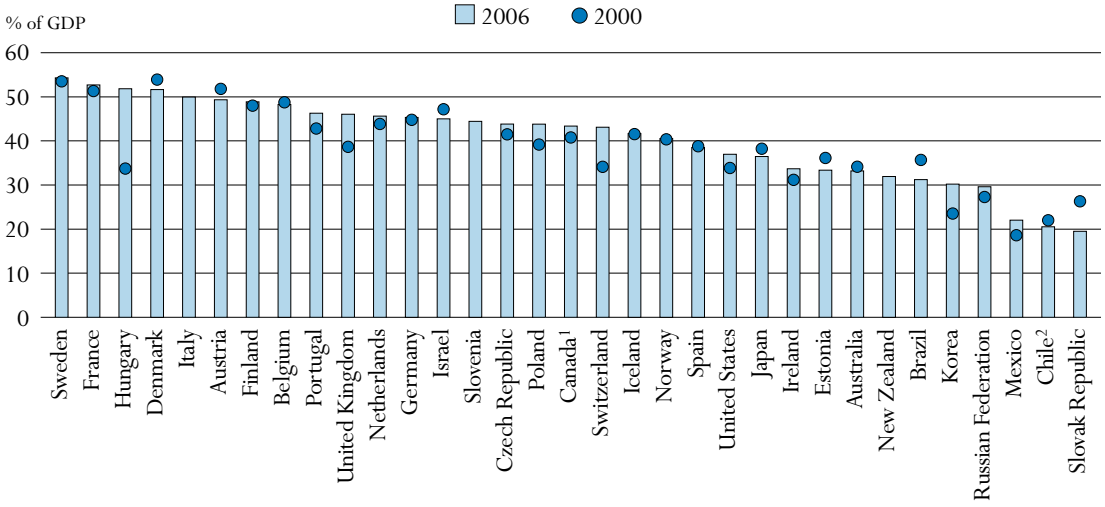
15.1% (Mexico) of total public expenditure to primary, secondary and post-secondary non-tertiary education, and between 1.6% (Italy) and 5.1% (New Zealand and Norway) to tertiary education. On average in OECD countries, public funding of primary, secondary and post-secondary non-tertiary education is nearly three times that of tertiary education, mainly owing to enrolment rates (see Indicator C1) and the demographic structure of the population or because the private share of expenditure tends to be higher at the tertiary level. This ratio varies by country, ranging from two times in Canada, Finland and Norway to five times in Korea. The latter figure is indicative of the relatively high proportion of private funds supporting tertiary education in Korea (Table B4.1).

Public funding of education is a social priority, even in OECD countries with little public involvement in other areas. When public expenditure on education is considered as a proportion of total public spending, the relative sizes of public budgets (as measured by public spending in relation to GDP) must be taken into account.

When the size of public budgets relative to GDP in OECD countries is compared with the proportion of public spending on education, it is evident that even in countries with relatively low rates of public spending, education has a very high priority. For instance, the share of public spending allocated to education in Korea, Mexico, the Slovak Republic and the partner countries Chile and Brazil is among the highest in OECD countries (Chart B4.1), yet total public spending accounts for a relatively small proportion of GDP in these countries (Chart B4.2).

Although the overall pattern is not clear, there is some evidence to suggest that countries with high rates of public spending spend proportionately less on education; only one of the top ten countries for public spending on public services overall – Denmark – is among the top ten public spenders on education (Chart B4.1 and Chart B4.2).

Chart B4.2. Total public expenditure on all services as a percentage of GDP (2000, 2006)



Note: This chart represents public expenditure on all services and not simply public expenditure on education.
1. Year of reference 2005 instead of 2006.
2. Year of reference 2007 instead of 2006.
Countries are ranked in descending order of total public expenditure as a percentage of GDP in 2006.
Source: OECD. Annex 2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664366200117

From 1995 to 2006, public expenditure on education typically grew faster than total public spending and as fast as national income; the average proportion of public expenditure on education increased over this period in 21 of the 27 countries with comparable data in both 1995 and 2006. At the same time, on average in these 27 countries public expenditure on education as a percentage of GDP slightly decreased. However, the main increase in public expenditure on education relative to total public spending took place from 1995 to 2000, while public expenditure on education and on other public sectors increased in the same proportions from 2000 to 2006. Although budget consolidation has put pressure on education along with every other service, the proportion of public budgets spent on education in OECD countries rose from 12.0% in 1995 to 13.3% in 2006. The figures suggest that the greatest relative increases in the share of public expenditure on education during this period took place in Denmark (12.2% to 15.6%), Ireland (12.2% to 14.4%), the Netherlands (9.1% to 12.0%), New Zealand (16.5% to 18.9%), the Slovak Republic (14.1% to 19.5%) and the United States (12.6% to 14.8%) and the partner countries Brazil (11.2% to 16.2%) and Chile (14.5% to 16.6%).

Definitions and methodologies

The data refer to the financial year 2006 and are based on the UOE data collection on education statistics administered by the OECD in 2008 (for details see Annex 3 at *www.oecd.org/edu/eag2009*).

Educational expenditure is expressed as a percentage of a country's total public sector expenditure and as a percentage of GDP. Public expenditure on education includes expenditure on educational institutions and subsidies for students' living costs and for other private expenditure outside institutions. Public expenditure on education includes expenditure by all public entities, including ministries other than ministries of education, local and regional governments and other public agencies.

Total public expenditure, also referred to as total public spending, corresponds to the non-repayable current and capital expenditure of all levels of government: central, regional and local. Current expenditure includes final consumption expenditure, property income paid, subsidies and other current transfers (*e.g.* social security, social assistance, pensions and other welfare benefits). Figures for total public expenditure have been taken from the OECD National Accounts Database (see Annex 2) and use the System of National Accounts 1993.

The glossary at *www.oecd.org/edu/eag2009* gives a definition of public, government-dependent private and independent private institutions.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/664366200117

- ***Table B4.2. Distribution of total public expenditure on education (2006)***
- ***Table B4.3a. Initial sources of public educational funds and final purchasers of educational resources by level of government for primary, secondary and post-secondary non-tertiary education (2006)***
- ***Table B4.3b. Initial sources of public educational funds and final purchasers of educational resources by level of government for tertiary education (2006)***

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Table B4.1.

Total public expenditure on education (1995, 2000, 2006)

Direct public expenditure on educational institutions plus public subsidies to households (which include subsidies for living costs) and other private entities, as a percentage of GDP and as a percentage of total public expenditure, by level of education and year

		Public expenditure[1] on education as a percentage of total public expenditure					Public expenditure[1] on education as a percentage of GDP				
		2006			2000	1995	2006			2000	1995
		Primary, secondary and post-secondary non-tertiary education	Tertiary education	All levels of education combined	All levels of education combined	All levels of education combined	Primary, secondary and post-secondary non-tertiary education	Tertiary education	All levels of education combined	All levels of education combined	All levels of education combined
OECD countries	**Australia**	10.3	3.4	13.9	13.6	13.6	3.4	1.1	4.6	4.7	5.0
	Austria	7.2	3.0	11.0	10.7	10.8	3.6	1.5	5.4	5.6	6.1
	Belgium	8.2	2.7	12.4	12.1	m	4.0	1.3	6.0	5.9	m
	Canada[2, 3]	7.7	4.1	11.8	12.4	12.7	3.3	1.8	5.1	5.1	6.2
	Czech Republic	6.5	2.3	10.1	9.5	8.7	2.8	1.0	4.4	4.0	4.8
	Denmark[3]	9.4	4.4	15.6	15.3	12.2	4.8	2.3	8.0	8.3	7.3
	Finland	7.9	4.0	12.6	12.5	11.0	3.9	1.9	6.1	6.0	6.8
	France	7.1	2.3	10.6	11.6	11.5	3.8	1.2	5.6	6.0	6.3
	Germany	6.3	2.5	9.7	9.8	8.5	2.8	1.1	4.4	4.4	4.6
	Greece	m	m	m	7.3	5.6	m	m	m	3.4	2.6
	Hungary	6.5	2.0	10.4	14.1	12.9	3.4	1.0	5.4	4.8	5.2
	Iceland	12.4	3.3	18.1	15.9	m	5.2	1.4	7.6	6.7	m
	Ireland	11.0	3.4	14.4	13.6	12.2	3.7	1.1	4.9	4.3	5.0
	Italy	6.9	1.6	9.5	9.8	9.0	3.4	0.8	4.7	4.5	4.7
	Japan[3]	7.0	1.7	9.5	9.5	m	2.6	0.6	3.5	3.6	3.6
	Korea	11.3	2.2	15.0	16.3	m	3.4	0.7	4.5	3.9	m
	Luxembourg[3, 4]	8.8	m	m	m	m	3.4	m	m	m	m
	Mexico	15.1	3.8	22.0	23.4	22.2	3.3	0.8	4.8	4.4	4.2
	Netherlands	7.8	3.3	12.0	11.2	9.1	3.6	1.5	5.5	5.0	5.1
	New Zealand	12.7	5.1	18.9	m	16.5	4.1	1.6	6.0	6.8	5.6
	Norway	9.8	5.1	16.2	14.5	15.5	4.0	2.1	6.6	5.9	7.9
	Poland[4]	8.6	2.2	12.0	12.7	11.9	3.8	1.0	5.3	5.0	5.2
	Portugal[4]	8.0	2.2	11.3	12.6	11.7	3.7	1.0	5.3	5.4	5.1
	Slovak Republic[3]	12.5	4.6	19.5	14.7	14.1	2.4	0.9	3.8	3.9	4.6
	Spain	7.2	2.5	11.1	10.9	10.3	2.8	1.0	4.3	4.3	4.6
	Sweden	8.1	3.4	12.6	13.4	10.7	4.4	1.9	6.8	7.2	7.1
	Switzerland[4]	8.7	3.4	12.8	15.6	13.5	3.7	1.5	5.5	5.4	5.7
	Turkey[4]	m	m	m	m	m	1.9	0.9	2.9	m	m
	United Kingdom	8.7	2.4	11.9	11.0	11.4	4.0	1.1	5.5	4.3	5.0
	United States	10.0	3.9	14.8	14.4	12.6	3.7	1.4	5.5	4.9	4.7
	OECD average	***9.0***	***3.1***	***13.3***	***12.9***	***12.0***	***3.5***	***1.3***	***5.3***	***5.1***	***5.3***
	EU19 average	***8.1***	***2.9***	***12.2***	***13.1***	***10.7***	***3.6***	***1.3***	***5.4***	***5.1***	***5.3***
Partner countries	**Brazil**[4]	12.3	2.7	16.2	10.4	11.2	3.8	0.8	5.1	3.8	3.9
	Chile[5]	12.2	2.5	16.6	17.5	14.5	2.5	0.5	3.4	3.9	3.0
	Estonia	10.6	2.8	14.4	14.9	13.9	3.5	0.9	4.8	5.4	5.8
	Israel	9.1	2.3	13.7	13.8	13.3	4.1	1.0	6.2	6.5	6.9
	Russian Federation[4]	6.8	2.9	13.1	10.6	m	2.0	0.8	3.9	2.9	m
	Slovenia	9.0	2.8	12.9	m	m	4.0	1.2	5.7	m	m

1. Public expenditure presented in this table includes public subsidies to households for living costs, which are not spent on educational institutions. Thus the figures presented here exceed those on public spending on institutions found in Table B2.1b.
2. Year of reference 2005 instead of 2006.
3. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
4. Public institutions only.
5. Year of reference 2007 instead of 2006.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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INDICATOR B5

HOW MUCH DO TERTIARY STUDENTS PAY AND WHAT PUBLIC SUBSIDIES DO THEY RECEIVE?

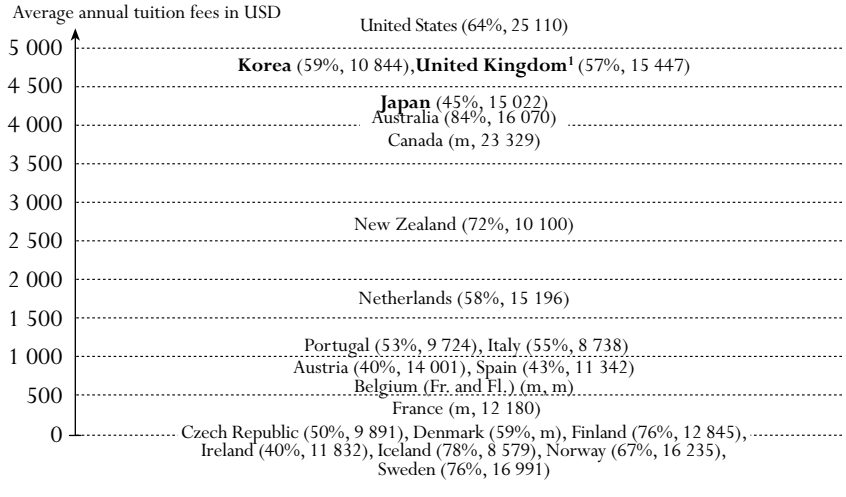
This indicator examines the relationships between annual tuition fees charged by institutions, direct and indirect public spending on educational institutions, and public subsidies to households for student living costs. It looks at whether financial subsidies for households are provided in the form of grants or loans and raises related questions: Are scholarships/grants and loans more common in countries with higher tuition fees charged by institutions? Are loans an effective means for helping to increase the efficiency of financial resources invested in education and to shift some of the cost of education to the beneficiaries of educational investment? Are student loans less common than grants as a means of encouraging low-income students to pursue their education?

Key results

Chart B5.1. Average annual tuition fees charged by tertiary-type A public institutions for full-time national students (academic year 2006/07)

This chart shows the annual tuition fees charged in equivalent USD converted using PPPs. Countries in bold indicate that tuition fees refer to public institutions but more than two-thirds of students are enrolled in private institutions. The net entry rate and expenditure per student (in USD) in tertiary-type A programmes are added next to country names.

There are large differences among OECD and partner countries for which data are available in the average tuition fees charged by tertiary-type A public institutions. In eight OECD countries public institutions charge no tuition fees, but in one-third of countries with available data public institutions charge annual tuition fees for national students in excess of USD 1 500. Among the EU19 countries for which data are available, only Italy, the Netherlands, Portugal and the United Kingdom (government-dependent institutions) have annual tuition fees that represent more than USD 1 100 per full-time student.



Note: This chart does not take into account grants, subsidies or loans that partially or fully offset the student's tuition fees.

1. Public institutions do not exist at this level of education and most students are enrolled in government dependent institutions.

Source: OECD. Table B1.1a, Table B5.1a and Table A2.4. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Other highlights of this indicator

- In most countries, tuition fees charged by tertiary-type B institutions are lower than those charged by tertiary-type A institutions. In parallel graduates of tertiary-type A education earn substantially more than tertiary-type B graduates in all of these countries.

- An average of 19% of public spending on tertiary education is devoted to supporting students, households and other private entities. In Australia, Denmark, the Netherlands, New Zealand, Norway, Sweden, the United Kingdom and the United States and the partner country Chile, public subsidies to households account for some 25% or more of public tertiary education budgets.

- Low annual tuition fees charged by tertiary-type A institutions are not systematically associated with a low proportion of students who benefit from public subsidies. In tertiary-type A education, the tuition fees charged by public institutions for national students are negligible in the Nordic countries and in the Czech Republic. Yet, at the same time, more than 55% of the students enrolled in tertiary-type A education in these countries benefit from scholarships/grants and/or public loans. Moreover, Finland, Norway and Sweden are among the seven countries with the highest entry rate to tertiary-type A education.

- OECD countries in which students are required to pay tuition fees and can benefit from particularly large public subsidies do not show lower levels of access to tertiary-type A education than the OECD average. For example, Australia (84%) and New Zealand (72%) have among the highest entry rates to tertiary-type A education, and the Netherlands (58%) and the United States (64%) are above the OECD average. The higher entry rates to tertiary-type A education in Australia and New Zealand are also due to high proportion of international students.

- Some studies conclude that loans are useful to support tertiary education study among middle-and upper-income students, but ineffective among lower-income students, while the converse is true for grants. Grants and loans are particularly developed in Australia, the Netherlands, New Zealand, Norway, Sweden, the United Kingdom, the United States and the partner country Chile. Globally, the cost to a government of providing public loans to a significant proportion of students is greater in countries where the average level of tuition fees charged by institutions is higher.

Policy context

Decisions taken by policy makers on the tuition fees charged by educational institutions affect both the cost of tertiary studies to students and the resources available to tertiary institutions. Subsidies to students and their families also serve as means by which governments encourage participation in education – particularly among students from low-income families – by covering part of the cost of education and related expenses. In this way, governments can seek to address issues of access and equality of opportunity. The impact of such subsidies must therefore be judged, at least in part, by examining indicators of participation, retention and completion. Furthermore, public subsidies play an important role in financing educational institutions indirectly.

Channeling funding for institutions through students may also help to increase competition among institutions. Since aid for student living costs can serve as a substitute for income from work, public subsidies may enhance educational attainment by enabling students to work less.

Public subsidies come in many forms: as means-based subsidies, as family allowances for all students, as tax allowances for students or their parents, or as other household transfers. Unconditional subsidies (such as tax reductions or family allowances) may provide less support for low-income students than means-tested subsidies. However, they may still help reduce financial disparities among households with and without children in education.

Evidence and explanations

What this indicator does and does not cover

This indicator shows average tuition fees charged in public and private institutions at tertiary-type A level. It does not distinguish tuition fees by type of programmes but gives an overview of tuition fees at tertiary-type A level by type of institution and presents the proportions of students who do or do not receive scholarships/grants that fully or partially cover tuition fees. Levels of tuition fees and associated proportions of students should be interpreted with caution as they result from the weighted average of the main tertiary-type A programmes and do not cover all educational institutions.

This indicator also shows the proportion of public spending on tertiary education transferred to students, families and other private entities. Some of these funds are spent indirectly on educational institutions – for example, subsidies which are used to cover tuition fees. Other subsidies for education do not relate to educational institutions, such as subsidies for student living costs.

The indicator distinguishes between scholarships and grants, which are non-repayable subsidies, and loans, which must be repaid. It does not, however, distinguish among different types of grants or loans, such as scholarships, family allowances and in-kind subsidies.

Governments can also support students and their families by providing housing allowances, tax reductions and/or tax credits for education. These subsidies are not covered here and thus financial aid to students may be substantially underestimated in some countries.

The indicator reports the full volume of student loans in order to provide information on the level of support received by current students. The gross amount of loans, including scholarships and grants, provides an appropriate measure of financial aid to current participants in education. Interest payments and repayments of principal by borrowers should be taken into account in order to assess the net cost of student loans to public and private lenders. However, such

payments are not usually made by current students but by former students. In most countries, moreover, loan repayments do not flow to the education authorities, and thus the money is not available to them to cover other educational expenditures. Nevertheless, some information on repayment systems for these loans is also taken into account, as these can substantially reduce the real costs of loans. OECD indicators take the full amount of scholarships and loans (gross) into account when discussing financial aid to current students.

It is also common for governments to guarantee the repayment of loans to students made by private lenders. In some OECD countries, this indirect form of subsidy is as significant as, or more significant than, direct financial aid to students. However, for reasons of comparability, the indicator only takes into account the amounts relating to public transfers for private loans that are made to private entities (not the total value of loans generated). Some qualitative information is nevertheless presented in some of the tables to give some insight on this type of subsidy.

Some OECD countries also have difficulty quantifying the amount of loans attributable to students. Therefore, data on student loans should be treated with some caution.

Annual tuition fees charged by tertiary-type A institutions for national and foreign students

There are large differences among OECD and partner countries in the average tuition fees charged by tertiary-type A institutions for national students. Public institutions in the five Nordic countries (Denmark, Finland, Iceland, Norway and Sweden) and in the Czech Republic and Ireland do not charge tuition fees. By contrast, one-third of OECD and partner countries with available data have annual tuition fees for national students charged by public institutions (or government-dependent private institutions) that exceed USD 1 500. In the United States, tuition fees reach more than USD 5 000 in public institutions. Among the EU19 countries for which data are available, only Italy, the Netherlands, Portugal and the United Kingdom have annual tuition fees that exceed USD 1 100 per full-time national student (Table B5.1a and Chart B5.1).

National policies regarding tuition fees and financial aid to students generally cover all students studying in the country's educational institutions. Even if the focus of this indicator is mainly on national students, countries' policies also have to take international students into account. These may include a country's national students going abroad for their studies or students who enter the country for the purpose of study. Differentiation between national and non-national students in terms of the fees students pay or the financial help they may receive can have, along with other factors, an impact on the flows of international students, either by attracting students to some countries or by preventing students from studying in other countries (see Indicator C2).

The tuition fees charged by public educational institutions may differ among students enrolled in the same programme. Several countries make a distinction in terms of students' citizenship. In Austria, for example, the average tuition fees charged by public institutions for students who are not citizens of EU or EEA countries are twice the fees charged for citizens of these countries. This kind of differentiation also appears in Australia, Canada, New Zealand and the United States, as well as the partner country Slovenia (see Indicator C2), and appeared in Denmark from the 2006/07 academic year. In these countries, the variation in tuition fees based on citizenship or on individual's residency is always significant (see Indicator C2).

Annual tuition fees charged by private institutions

Annual tuition fees charged by private institutions vary considerably across OECD and partner countries as well as within countries themselves. In most OECD and partner countries higher tuition fees are charged by private institutions than by public institutions. Finland, Ireland and Sweden are the only countries with no tuition fees in either public or private institutions. Variation within countries tends to be highest in countries with the largest proportions of students enrolled in independent tertiary-type A private institutions. By contrast, tuition fees charged by public as compared to government-dependent institutions differ less in most countries and, in Austria, there is even no difference in tuitions fees charged between these types of institutions. The greater autonomy of independent private institutions as compared to public and government-dependent institutions partially explains this situation.

Annual tuition fees charged by tertiary-type B institutions for national students

There may also be large differences among OECD and partner countries in the average tuition fees charged in tertiary type-B education. In Nordic countries as well as in the Czech Republic and Ireland, there are no tuition fees in tertiary-type A institutions; and there are usually no (or small) tuition fees charged in most tertiary-type B institutions. At the same time, the tertiary-type B sector in these countries is relatively small (with less than 10% of tertiary full-time students). Among other countries in which tertiary-type B institutions enrol a small proportion of full-time students (15% or less), Austria, Denmark and Spain are the only ones in which these institutions do not charge tuition fees or charge negligible fees. Australia is unique in that a small proportion of tertiary full-time students are enrolled in tertiary-type B education (10%, two-thirds of them in public institutions), but has the highest average tuition fees (about USD 2 400) among all OECD and partner countries except Korea. These fees are nevertheless lower than those in tertiary-type A education (about USD 4 035) (Table B5.1a, and Table B5.1b available on line).

In 15 OECD and partner countries, at least 15% of tertiary full-time students are enrolled in type B education. In the seven of these countries for which data on tuition fees are available, public tertiary-type B institutions charge on average between USD 1 780 and USD 3 370 for national students, with the exception of Ireland (no tuition fees). In Japan and Korea, 25% and 37% respectively of full-time tertiary students are enrolled in tertiary-type B institutions. Most of these students are enrolled in private institutions with tuition fees amounting to more than USD 5 000 on average (Table B5.1b). In these seven OECD and partner countries, tuition fees charged by tertiary-type B institutions are lower than those charged by tertiary-type A institutions. This is mainly because graduates of tertiary-type A education earn substantially more than tertiary-type B graduates in all of these countries (Table A7.1 and Table B5.1a, and Table B5.1b available on line).

Public subsidies to households and other private entities

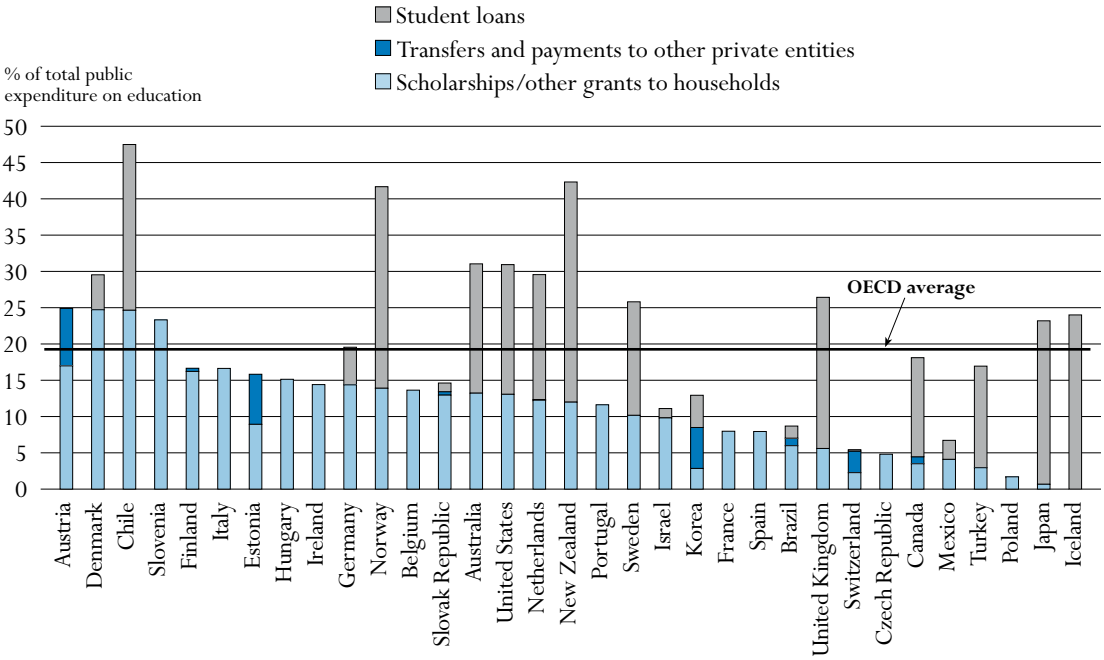
OECD countries spend an average of 0.4% of their GDP on public subsidies to households and other private entities for all levels of education combined. The proportion of educational budgets spent on subsidies to households and private entities is much higher at the tertiary level than at the primary, secondary and post-secondary non-tertiary levels and represents 0.3% of GDP.

The subsidies are the largest in relation to GDP at tertiary level in Norway (0.9% of GDP), followed by Denmark (0.7%), New Zealand (0.7%), Sweden (0.5%), Austria (0.4%), the Netherlands (0.4%) and the United States (0.4%) (Table B5.4, and Table B5.5 available on line).

OECD countries spend, on average, 19% of their public budgets for tertiary education on subsidies to households and other private entities (Chart B5.2). In Australia, Denmark, the Netherlands, New Zealand, Norway, Sweden, the United Kingdom and the United States and the partner country Chile, public subsidies account for more than 25% of public spending on tertiary education. Only the Czech Republic and Poland spend less than 5% of total public spending on tertiary education on subsidies (Table B5.4).

Chart B5.2. Public subsidies for education in tertiary education (2006)

Public subsidies for education to households and other private entities as a percentage of total public expenditure on education, by type of subsidy



Countries are ranked in descending order of the share of scholarships/other grants to households and transfers and payments to other private entities in total public expenditure on education.

Source: OECD. Table B5.4. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Overall country approaches to funding tertiary education

Countries differ in their approach to funding tertiary education. This section provides a taxonomy of approaches to funding tertiary education in OECD and partner countries along with available data. Countries are grouped according to two dimensions. The first is the extent of cost-sharing, that is, the level of contribution requested from the student and/or his or her family in tertiary-type A education. The second concerns the public subsidies received by students at this level of education.

There is no single model in OECD and partner countries for financing tertiary-type A education. Some countries in which tertiary-type A institutions charge similar tuition fees may have differences in the proportion of students benefiting from public subsidies and/or differences in the average amount of these subsidies (Table B5.1a, Table B5.2, Table B5.4 and Chart B5.3). Nevertheless, comparisons of the tuition fees charged by institutions and public subsidies received by students, as well as other factors such as access to tertiary education, level of public expenditure on tertiary education or the level of taxation on income, help to distinguish four main groups of countries. In addition, tax revenue based on income (OECD, 2006a) is highly correlated with the level of public expenditure available for education and the level of tax revenue can provide some information on the possibility of financing public subsidies to students.

Model 1: Countries with no or low tuition fees but quite generous student support systems

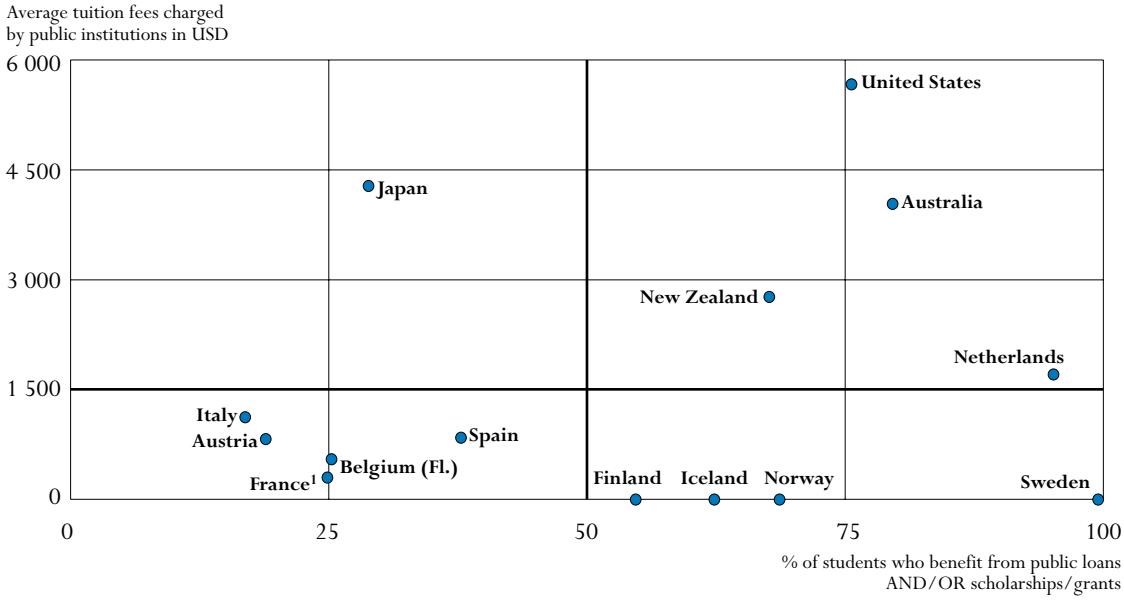
This group includes the Nordic countries (Denmark, Finland, Iceland, Norway and Sweden), the Czech Republic and Turkey. There are no (or low) financial barriers for tertiary studies due to tuition fees and even a high level of student aid. At 60%, the average entry rate to tertiary-type A education for this group is above the OECD average (see Indicator A2). Tuition fees charged by public educational institutions for national students are negligible (Nordic countries and the Czech Republic) or low (Turkey) in tertiary-type A education. More than 55% of students enrolled in tertiary-type A education in this group can benefit from scholarships/grants and/or public loans to finance their studies or living expenses (Table B5.1a and Table B5.2, and Chart B5.3).

In the Nordic countries, net entry rates in tertiary-type A education are, on average, 71%, which is significantly higher than the OECD average. Also, in these countries the level of public expenditure on tertiary education as a percentage of GDP and taxation on income are among the highest among OECD and partner countries. The way tertiary education is paid for expresses a vision of these countries' societies. Public funding of tertiary education is seen as the operational expression of the weight attached to such deeply rooted social values as equality of opportunity and social equity, which are characteristic of the Nordic countries. The notion that government should provide its citizens with tertiary education at no charge to the user is a prime feature of these countries' educational culture. In its current mode, the funding of both institutions and students in these countries is based on the principle that access to tertiary education is a right, rather than a benefit (OECD [2008b], Chapter 4).

The Czech Republic and Turkey have a different pattern: lower access to tertiary-type A education compared to the OECD average (especially for Turkey) – despite increases of 25 and 10 percentage points, respectively, between 2000 and 2006 – combined with low levels (compared to the OECD average) of public spending and of tax revenue on income as a percentage of GDP compared to the OECD average (see Indicators B4 and A2 and OECD [2006a]). In these two countries, more than three-quarters of students enrolled in tertiary-type A programmes benefited from scholarships/grants (the Czech Republic) or from a loan (Turkey) (see Table B5.1c in *Education at a Glance 2008*), but the average amount of these public subsidies is small compared to the Nordic countries and compared to the OECD average. This indicates that these two countries are also close to those included in model 4.

Chart B5.3. Relationships between average tuition fees charged by public institutions and proportion of students who benefit from public loans AND/OR scholarships/grants in tertiary-type A education (academic year 2006/07)

For full-time national students, in USD converted using PPPs



1. Average tuition fees from 176 to 1 173 USD for University programmes dependent from the Ministry of Education.
Source: OECD. Table B5.1a and Table B5.2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Model 2: Countries with high level of tuition fees and well developed student support systems

A second group includes Australia, Canada, the Netherlands, New Zealand, the United Kingdom and the United States and the partner country Chile. These countries have potentially high financial barriers for entry to tertiary-type A education, but also provide large public subsidies to students. It is noteworthy that the average entry rate to tertiary-type A education for this group of countries is, at 68%, slightly above the OECD average and higher than most countries with low levels of tuition fees (except the Nordic countries).

Tuition fees charged by tertiary-type A institutions exceed USD 1 500 in all these countries and more than 68% of tertiary-type A students receive public subsidies (in Australia, the Netherlands, New Zealand and the United States, the four countries for which data are available; see Table B5.1a and Table B5.2). Student support systems are well developed and mostly accommodate the needs of the entire student population, with a proportion of public subsidies in total public expenditure on tertiary education higher than the OECD average (19%) in six out of the seven countries: Australia (31%), the Netherlands (30%), New Zealand (42%), the United Kingdom (26%) and the United States (31%) and the partner country Chile (47%), and nearly at the average for Canada (Table B5.4). Countries in this group do not have lower access to tertiary-type A education than countries from the other groups. For example, Australia (84%) and New Zealand (72%) have among the highest entry rates to tertiary-type A education also

explained by a high proportion of international students enrolled in tertiary-type A education. The Netherlands (58%), the United Kingdom (57%) and the United States (64%) are above the OECD average (55%) in 2006, and the partner country Chile (43%) is below the OECD average, although entry to tertiary-type A education in this country increased by about 10 percentage points between 2000 and 2006 (Table A2.5). Finally, these countries spend more per tertiary student on core services than the OECD average and have a relatively high level of tax revenue based on income as a percentage of GDP compared to the OECD average. The Netherlands is an exception in terms of the level of taxation on income, and the partner country Chile for both of these indicators (Table B1.1b and OECD [2006a]).

Model 3: Countries with high level of tuition fees but less developed student support systems

Japan and Korea present a different pattern: while cost sharing is extensive and broadly uniform across students, student support systems are somewhat less developed than in Models 1 and 2. This places a considerable financial burden on students and their families. In these two countries, tertiary-type A institutions charge high tuition fees (more than USD 4 200) but a relatively small proportion of students benefit from public subsidies (one-quarter of students receive public subsidies in Japan, and 13% of total public expenditure on tertiary education is allocated to public subsidies in Korea). Tertiary-type A entry rates in these two countries are 45% and 59%, respectively, which is below the OECD average for Japan and slightly above the average for Korea. In Japan, some students who excel academically but have difficulty in financing their studies may benefit from reduced tuition and/or admission fees or be entirely exempted from these fees. The below average access to tertiary-type A education is counterbalanced by an above OECD average entry rate to tertiary-type B programmes (see Indicator A2). These two countries are among those with the lowest levels of public expenditure allocated to tertiary education as a percentage of GDP (Table B4.1). This partially explains the small proportion of students who benefit from public loans; tax revenue from income as a percentage of GDP is also among the lowest in OECD countries. However, in Japan, public subsidies for students are above the OECD average and represent 23% of total public expenditure on tertiary education; expenditure per tertiary student is also above the OECD average. Korea presents the opposite picture on both indicators (Table B5.4).

Model 4: Countries with a low level of tuition fees and less developed student support systems

The fourth and last group includes all other European countries for which data are available (Austria, Belgium, France, Ireland, Italy, Portugal and Spain). These countries have relatively low financial barriers to entry to tertiary education combined with relatively low subsidies for students, which are mainly targeted to specific groups. There is a high level of dependence on public resources for the funding of tertiary education and participation levels are typically below the OECD average. The average tertiary-type A entry rate in this group of countries is a relatively low 48% (but counterbalanced by high entry rates in tertiary-type B in Belgium). Similarly, expenditure per student in tertiary-type A education is also comparatively low (see Indicator B1 and Chart B5.1). While high tuition fees can raise potential barriers to student participation, this suggests that the absence of tuition fees, which is assumed to ease access to education, is not sufficient to entirely meet the challenges of access and quality of tertiary-type A education.

Tuition fees charged by public institutions in this group never exceed USD 1 200, and, in countries for which data are available, the proportion of students who benefit from public subsidies is below 40% (Table B5.1a and Table B5.2). In these countries students and their families can benefit from subsidies provided by sources other than the ministry of education (*e.g.* housing allowances, tax reductions and/or tax credits for education); these are not covered in this analysis. For example, in France housing allowances represent about 90% of scholarships/grants and about one-third of students benefit from these allowances. In Poland, a notable feature is that cost sharing is achieved through arrangements in which some students have their studies fully subsidised by the public budget and the remainder pay the full costs of tuition. In other words, the burden of private contributions is borne by part of the student population rather than shared by all (see Indicator B3 and *Education at a Glance 2008*). Loan systems (public loans or loans guaranteed by the state) are not available or only available to a small proportion of student in these countries (Table B5.2). At the same time, the level of public spending and the tax revenue from income as a percentage of GDP vary significantly more among this group of countries than in the other groups, but policies on tuition fees and public subsidies are not necessarily the main drivers in students' decision to enter tertiary-type A education.

OECD countries use different mixes of grants and loans to subsidise students' educational costs

A key question in many OECD countries is whether financial subsidies for households should be provided primarily in the form of grants or loans. Governments subsidise students' living or educational costs through different mixes of these two types of subsidies. Advocates of student loans argue that money spent on loans goes further: if the amount spent on grants were used to guarantee or subsidise loans instead, more aid would be available to students and overall access would increase. Loans also shift some of the cost of education to those who benefit most from educational investment. Opponents of loans argue that student loans are less effective than grants in encouraging low-income students to pursue their education. They also argue that loans may be less efficient than anticipated because of the various subsidies provided to borrowers or lenders and because of the costs of administration and servicing. Cultural differences among and within countries may also affect students' willingness to take out student loans. Thus, Usher (2006), analysing the summary of the literature on tertiary education access in the United States by St. John (2003), concluded that loans are useful to support tertiary study among middle and upper-income students, but ineffective among lower-income students, while the converse is true for grants (for more details see *Education at a Glance 2008*).

Chart B5.2 presents the proportion of public educational expenditure dedicated to loans, grants and scholarships, and other subsidies to households at the tertiary level. Grants and scholarships include family allowances and other specific subsidies, but exclude tax reductions that are part of the subsidy system in Australia, Belgium (Flemish Community), Canada, the Czech Republic, Finland, France, Hungary, Italy, the Netherlands, Norway, the Slovak Republic, Switzerland and the United States (see Chart B5.3 in *Education at a Glance 2006*). More than one-third of the 33 reporting OECD countries and partner countries rely exclusively on scholarships/ grants and transfers/payments to other private entities. The remaining OECD countries provide both scholarships/grants and loans to students (except Iceland, which relies only on student loans) and both subsidies are particularly developed in Australia, the Netherlands, New Zealand,

Norway, Sweden, the United Kingdom, the United States and the partner country Chile. In general, the highest subsidies to students are provided by the countries that offer student loans; in most cases these countries also spend an above-average proportion of their budgets on grants and scholarships alone (Chart B5.2 and Table B5.4). Some other countries – Belgium (Flemish Community), Finland, Hungary, Poland and the partner country Estonia – do not have public loan systems but private loans that are guaranteed by the state (Table B5.3).

Implementation of public loan systems and amount of public loans

Public loan systems are relatively recent in most of the countries that report data; their development occurred between the 1960s and 1980s, corresponding to the massive growth in enrolments at the tertiary level of education. Since then, public loan systems have developed particularly in Australia and Sweden, where some 75% or more of students benefit from a public loan during their tertiary-type A studies. Public loan systems are also quite well developed in Iceland (63% of students have a loan) and Norway (65%), two of the countries – along with Sweden – where educational institutions at this level do not charge tuition fees. In contrast, the United States has the highest tuition fees in public tertiary-type A institutions, but only 55% of students benefit from a public loan in a given year. However, the cumulative figure for students ever taking out a public loan during their studies will be higher.

The financial support that students receive from public loans during their studies cannot be solely analysed in light of the proportion of students who have loans. The support for students also depends on the amount they can receive in public loans. In countries with comparable data, the average annual gross amount of public loan available to each student is superior to USD 4 000 in about one-half of the countries and ranges from less than USD 2 000 in Belgium (French Community) and Turkey to more than USD 5 400 in Iceland, Japan, Mexico, the Netherlands, the United Kingdom and the United States (Table B5.3, reference year 2004/05).

A comparison of average tuition fees and average amounts of loans should be interpreted with caution because, in a given educational programme, the amount of a loan can vary widely among students, even though the programme's tuition fees are usually similar. Nevertheless, such a comparison can give some insight into the possibility of students receiving a loan to cover tuition fees and living expenses. The higher the average level of tuition fees charged by institutions, the greater the need for financial support to students through public loans, in order to overcome financial barriers that prevent access to tertiary education. The financial pressure on governments to support students increases with the tuition fees charged by institutions. In all of the OECD countries for which data on annual gross amounts of loans are available, the average amount of public loan is superior to the average tuition fees charged by public institutions. This shows that public loans may also help to support student's living expenses during their studies.

Among the countries with average tuition fees above USD 1 500 in tertiary-type A public institutions, the average amount of the loan is more than twice the average tuition fees in the Netherlands and the United Kingdom. However, in the Netherlands, the difference in amounts should be counterbalanced by the fact that only about one-quarter of students benefit from a loan (this information is not available for the United Kingdom). The largest differences between average tuition fees and the average amount of loans are observed in the

Nordic countries, in which no tuition fees are charged by institutions and a large proportion of students benefit annually from a public loan with an average amount ranging from about USD 2 500 in Denmark to nearly USD 7 000 in Iceland to nearly USD 9 000 in Norway (Table B5.1a and Table B5.3).

The amount that students receive is not the only support related to public loans. Public loan systems also offer some financial aid through the interest rate that students may have to pay, the repayment system or even remission/forgiveness mechanisms (Table B5.3).

Financial support through interest rates

The financial help arising from reduced interest rates on public or private loans is twofold: there may be a difference between the interest rates supported by students during and after their studies. Comparing interest rates among countries is quite difficult as the structure of interest rates (public and private) is not known and can vary significantly among countries, so that a given interest rate may be considered high in one country and low in another. However, the difference in rates during and after studies seems to aim at lowering the charge on the loan during the student's studies. For example, in Canada, Iceland, New Zealand and Norway, there is no nominal interest rate on the public loan during the period of studies, but after their studies, students/graduates may incur an interest charge that is related to the cost of government borrowing or even higher. For example, New Zealand, which made loans interest-free for borrowers while they reside in New Zealand in 2006/07, charges an interest rate on loans to borrowers who are overseas. Belgium, the Netherlands, Sweden, the United Kingdom, the United States and the partner country Estonia do not differentiate between the interest rate borne by student during and after their studies. In Australia, a real interest rate is not charged on loans. Instead, the part of a loan which has remained unpaid for 11 months or more is indexed to ensure that the real value of the loan is maintained (Table B5.3).

Repayment of loans

Repayment of public loans can be a substantial source of income for governments and can decrease the costs of loan programmes significantly. The current reporting of household expenditure on education as part of private expenditure (see Indicator B3) does not take into account the repayment of public loans by previous recipients.

These repayments can be a substantial burden on individuals and have an impact on the decision to participate in tertiary education. The repayment period varies among countries and ranges from less than 10 years in Belgium (French Community), New Zealand and Turkey and the partner country Estonia, to 20 years or more in Iceland, Norway and Sweden.

Among the 13 OECD countries for which data on repayment systems are available, 4 Anglophone countries (Australia, New Zealand, the United Kingdom and, under specific circumstances, the United States) as well as Iceland and the Netherlands make the repayment of loans dependent on graduates' level of income (with a maximum of payback time up to 15 years in the case of the Netherlands). These are also countries in which the average tuition fees charged by their institutions are higher than USD 1 500 and the average amount of the loan is among the highest in the countries with a public loan system (Table B5.3).

Definitions and methodologies

Data refer to the financial year 2006 and are based on the UOE data collection on education statistics administered by the OECD in 2008 (for details see Annex 3 at *www.oecd.org/edu/eag2009*). Data on tuition fees charged by educational institutions and financial aid to students (Table B5.1a, and Table B5.1b available on line) were collected through a special survey undertaken in 2007 and updated in 2008 and refer to the academic year 2006/07. Amounts of tuition fees and amounts of loans in national currency is converted into equivalent USD by dividing the national currency figure by the purchasing power parity (PPP) index for GDP. Amounts of tuition fees and associated proportions of students should be interpreted with caution as they represent the weighted average of the main tertiary-type A programmes and do not cover all the educational institutions.

Public subsidies to households include the following categories: *i)* grants/scholarships; *ii)* public student loans; *iii)* family or child allowances contingent on student status; i*v)* public subsidies in cash or in kind, specifically for housing, transport, medical expenses, books and supplies, social, recreational and other purposes; and *v)* interest-related subsidies for private loans.

Expenditure on student loans is reported on a gross basis, that is, without subtracting or netting out repayments or interest payments from borrowers (students or households). This is because the gross amount of loans, including scholarships and grants, provides an appropriate measure of the financial aid to current participants in education.

Public costs related to private loans guaranteed by governments are included as subsidies to other private entities. Unlike public loans, only the net cost of these loans is included.

The value of tax reductions or credits to households and students is not included.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/664366467748

- ***Table B5.1b. Estimated annual average tuition fees charged by tertiary-type B educational institutions for national students (academic year 2006/2007)***
- ***Table B5.5. Public subsidies for households and other private entities as a percentage of total public expenditure on education and GDP, for primary, secondary and post-secondary non-tertiary education (2006)***

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Table B5.1a.

Estimated annual average tuition fees charged by tertiary-type A educational institutions[1] for national students (academic year 2006/2007)

In equivalent USD converted using PPPs, by type of institutions, based on full-time students

Tuition fees and associated proportions of students should be interpreted with caution as they result from the weighted average of the main tertiary-type A programmes and do not cover all educational institutions. However, the figures reported can be considered as good proxies and show the difference among countries in tuition fees charged by main educational institutions and for the majority of students.

OECD countries	Percentage of tertiary full-time students enrolled in tertiary-type A	Percentage of tertiary-type A full-time students enrolled in:			Annual average tuition fees in USD charged by institutions (for full-time students)			Comment
		Public institutions	Government dependent private institutions	Independent private	Public institutions	Government dependent private institutions	Independent private	
	(1)	(2)	(3)		(4)	(5)	(6)	(7)
Australia	87	97	a	3	4 035	a	7 902	93% of national students in public institutions are in subsidised places and pay an average USD 3 719 tuition fee, including HECS/HELP subsidies.
Austria[2]	84	88	12	n	825	825	n	
Belgium (Fl.)	52	50	50	m	x(5)	514 to 583	m	Tuition fees refer to those for students enrolled in first (bachelor) and second (master) degree programmes. The information does not refer to further degree programmes (for example master after master). This information refers to students without scholarship (student with a scholarship benefit from lower tuition fees).
Belgium (Fr.)[3]	m	m	m	n	m	m	m	
Canada	96	m	m	m	3 705	x(4)	x(4)	
Czech Republic	84	m	a	m	No tuition fees	a	m	The average fee in public institutions is negligible because fees are paid only by student studying too long (more than standard length of the programme plus 1 year) : about 4% of students.
Denmark[4]	89	100	n	a	No tuition fees	m	a	
Finland	100	89	11	a	No tuition fees	No tuition fees	a	Excluding membership fees to student unions.
France	72	87	x(3)	13	176 to 1 173	m	m	Tuition fees in public institutions refer to University programmes dependent from the Ministry of Education.
Germany	87	m	m	m	m	m	m	
Greece	59	100	a	a	m	m	m	
Hungary	90	88	12	a	m	m	m	
Iceland	98	79	21	a	No tuition fees	2 058 to 6 449	a	Subsidised student loans that cover tuition fees are available for all students. Almost no scholarships/grants exist.
Ireland	74	98	a	2	No tuition fees	a	No tuition fees	The tuition fees charged by institutions are paid directly by the government and the students do not have to pay these fees.
Italy	97	92	a	8	1 123	a	3 866	The annual average tuition fees do not take into account the scholarships/grants that fully cover tuition fees but partial reductions of fees cannot be excluded.
Japan	73	25	a	75	4 279	a	6 695	Excludes admission fee charged by the school for the first year (USD 2 271 on average).

1. Scholarships/grants that the student may receive are not taken into account.
2. Including students in advanced research programmes.
3. Tuition fees charged for programmes are the same in public as in private institutions but the distribution of students differs between public and private institutions, so the weighted average is not the same.
4. Weighted average for all tertiary education.
5. Tuition fees in total tertiary education.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664366467748

Table B5.1a. *(continued)*

Estimated annual average tuition fees charged by tertiary-type A educational institutions[1] for national students (academic year 2006/2007)

In equivalent USD converted using PPPs, by type of institutions, based on full-time students

Tuition fees and associated proportions of students should be interpreted with caution as they result from the weighted average of the main tertiary-type A programmes and do not cover all educational institutions. However, the figures reported can be considered good proxies and show the difference among countries in tuition fees charged by main educational institutions and for the majority of students.

		Percentage of tertiary full-time students enrolled in tertiary-type A	Percentage of tertiary-type A full-time students enrolled in:			Annual average tuition fees in USD charged by institutions (for full-time students)			Comment
			Public institutions	Government dependent private institutions	Independent private	Public institutions	Government dependent private institutions	Independent private	
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD countries	Korea	62	22	a	78	4 717	a	8 519	Tuition fees in first degree programme only. Excludes admission fees to university, but includes supporting fees.
	Luxembourg	m	m	m	m	m	m	m	
	Mexico	96	66	a	34	m	a	m	
	Netherlands	100	100	a	n	1 707	a	m	
	New Zealand	78	98	2	n	2 765	m	n	
	Norway	96	88	12	n	No tuition fees	5 124	n	Student fees are representative of the dominant private ISCED 5 institution in Norway.
	Poland	95	m	a	m	m	a	m	
	Portugal[5]	93	74	a	26	1 180	4 774	m	
	Slovak Republic	96	m	m	m	m	m	m	
	Spain	81	88	a	12	844	a	m	
	Sweden	87	93	7	n	No tuition fees	No tuition fees	m	Excluding mandatory membership fees to student unions.
	Switzerland	84	m	m	m	m	m	m	
	Turkey	69	m	a	m	m	a	m	
	United Kingdom	88	a	100	n	a	4 694	m	Students from low-income households can access non-repayable grants and bursaries. Loans for tuition fees and living costs are available to all eligible students.
	United States	81	67	a	33	5 666	a	20 517	Including non-national students.
Partner countries	Brazil	93	m	a	m	m	a	m	
	Chile	66	m	m	m	m	m	m	
	Estonia	62	m	m	m	a	m	m	
	Israel	75	a	m	m	a	m	m	
	Russian Federation	73	m	a	m	m	a	m	
	Slovenia	66	m	m	m	m	m	668	In public and government dependent private institutions: First and second level full-time students do not pay tuition fees. But third-level full-time students pay on average between USD 3 158 and USD 4 032.

1. Scholarships/grants that the student may receive are not taken into account.
2. Including students in advanced research programmes.
3. Tuition fees charged for programmes are the same in public as in private institutions but the distribution of students differs between public and private institutions, so the weighted average is not the same.
4. Weighted average for all tertiary education.
5. Tuition fees in total tertiary education.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664366467748

Table B5.2.

Distribution of financial aid to students compared to amount of tuition fees charged in tertiary-type A education (academic year 2006/2007)

		Distribution of financial aid to students: Percentage of students that:				Distribution of scholarships/grants in support of tuition fees: Percentage of students that:			
		benefit from public loans only	benefit from scholarships/grants only	benefit from public loans AND scholarships/grants	DO NOT benefit from public loans OR scholarships/grants	receive scholarships/grants that is higher than the tuition fees	receive scholarships/grants whose amount is equivalent to the tuition fees	receive scholarships/grants that partially cover the tuition fees	DO NOT receive scholarships/grants in support of tuition fees
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD countries	**Australia**[1]	76	n	4	20	n	n	4.8	95.2
	Austria	a	19	a	81	18.4	n	1.2	80.4
	Belgium (Fl.)[2]	a	23	a	77	22.8	x(5)	x(5)	77.2
	Belgium (Fr.)	m	m	m	m	m	m	m	m
	Canada	m	m	m	m	m	m	m	m
	Czech Republic	m	m	a	m	m	m	m	m
	Denmark[2]	m	m	m	m	m	m	m	m
	Finland[2]	a	55	a	45	a	a	a	a
	France[2]	a	25	a	75	m	m	m	m
	Germany	m	m	m	m	m	m	m	m
	Greece	m	m	m	m	m	m	m	m
	Hungary	14	34	9	43	m	m	m	m
	Iceland	63	m	m	37	a	a	a	100.0
	Ireland	a	m	a	m	a	a	a	a
	Italy	n	17	n	83	7.9	3.2	5.4	83.5
	Japan	28	1	n	72	a	a	a	100.0
	Korea	m	m	m	m	m	m	m	m
	Luxembourg	m	m	m	m	m	m	m	m
	Mexico[2]	m	m	m	m	m	m	m	m
	Netherlands	11	65	19	5	70.0	n	14.0	16.0
	New Zealand	42	3	24	32	45.4	x(5)	x(5)	54.6
	Norway[2]	7	4	59	31	m	m	m	m
	Poland	m	m	m	m	m	m	m	m
	Portugal	m	m	m	m	m	m	m	m
	Slovak Republic	m	m	m	m	m	m	m	m
	Spain	n	38	n	62	18.7	4.3	15.2	61.9
	Sweden[2]	n	25	75	n	a	a	a	a
	Switzerland	2	11	m	87	m	m	m	m
	Turkey	m	m	m	m	m	m	m	m
	United Kingdom	m	m	m	m	m	m	m	m
	United States[2]	17	22	38	24	m	m	m	m
Partner countries	**Brazil**	m	m	m	m	m	m	m	m
	Chile[2]	m	m	m	m	m	m	m	m
	Estonia	m	m	m	m	m	m	m	m
	Israel	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m
	Slovenia	a	33	n	67	m	m	m	m

1. Excludes foreign students.
2. Distribution of students in total tertiary education.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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B5

Table B5.3.

Financial support to students through public loans in tertiary-type A education (academic year 2004/2005)

National students, in USD converted using PPPs

OECD countries	Year of the creation of a public loan system in the country	Proportion of students who have a loan (in %) (academic year 2006/2007)	Average annual gross amount of loan available to each students (in USD)	Subsidy through reduced interest rate		Repayment				Debt at graduation	
				Interest rate during studies	Interest rate after studies	Repayment system	Annual minimum income threshold (in USD)	Duration of typical amortisation period (in years)	Average annual amount of repayment (in USD)	Percentage of graduates with debt (in %)	Average debt at graduation (in USD)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Australia[1]	1989	80	3 450	No nominal interest rate	No real interest rate (indexed to CPI)	Income contingent	25 750	m	m	67% (domestic graduates)	m
Belgium (Fl.)[2]	a	a	m	1/3 of the interest rate supported by the students (2%)	1/3 of the interest rate supported by the students (2%)	m	m	m	m	m	m
Belgium (Fr.)[3]	1983	m	1 380	4.0%	4.0%	Mortgage style	-	5	250	a	a
Canada[4]	1964	m	3 970	No nominal interest rate	Interest rates paid by the student (6.7%)	Mortgage style	-	10	950	m	m
Denmark[5]	1970	m	2 500	4.0%	Flexible rate set by the Central Bank plus 1pt of %	Mortgage style	-	10-15	830	49	10 430
Finland[2]	1969	a	Up to 2 710 per year	1.0%	Full interest rate agreed with the private bank; interest assistance for low-income persons	Mortgage style	-	m	1 330	39	6 160
Hungary[2]	2001	23	1 717	11.95%	11.95%	Mortgage style	-	m	640	m	m
Iceland	1961	63	6 950	No nominal interest rate	1.0%	A fixed part and a part that is income contingent	-	22	3.75% of income	m	m
Japan[6]	1943	28	5 950	No nominal nor real interest rate	Maximum of 3%, rest paid by government	Mortgage style	-	15	1 270	m	m
Mexico[7]	1970	m	10 480	m	m	m	m	m	m	m	m

1. Including commonwealth countries.
2. Loan guaranteed by the state rather than public loan.
3. Loan made to the parents of the student, and only parents have to pay back the loan.
4. Loan outside Quebec. In Quebec, there are only private loans guaranted by the government.
5. The proportion of students refers to all tertiary education. Average amount of loan includes foreign students.
6. Average amount of loan for students in tertiary-type A first qualification programme.
7. Average amount of loan for students in tertiary education.
8. Annual gross amount of loan refers to students in England.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664366467748

Table B5.3. *(continued)*

Financial support to students through public loans in tertiary-type A education (academic year 2004/2005)

National students, in USD converted using PPPs

		Year of the creation of a public loan system in the country	Proportion of students who have a loan (in %) (academic year 2006/2007)	Average annual gross amount of loan available to each students (in USD)	Subsidy through reduced interest rate		Repayment				Debt at graduation	
					Interest rate during studies	Interest rate after studies	Repayment system	Annual minimum income threshold (in USD)	Duration of typical amortisation period (in years)	Average annual amount of repayment (in USD)	Percentage of graduates with debt (in %)	Average debt at graduation (in USD)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD countries	**Netherlands**	1986	30	5 730	Cost of government borrowing (3.05%), but repayment delayed until the end of studies	Cost of government borrowing (3.05%)	Income contingent	17 490	15	m	m	12 270
	New Zealand	1992	66	4 320	No nominal interest rate	Cost of government borrowing (max. 7%)	Income contingent	10 990	6.7	10% of income amount above income threshold	57% (domestic graduates)	15 320
	Norway	1947	65	maximum 8 960	No nominal interest rate	Cost of government borrowing + 1%	Mortgage style (with exceptions)	-	20	1 789	m	21 316
	Poland[2]	1998	m	maximum 3 250	No nominal interest rate	Cost of government borrowing (2.85% to 4.2%)	Mortgage style	-	m (twice as long as benefiting period)	1 950 (+interest)	11	3 250 - 19 510
	Sweden	1965	75	4 940	2.80%	2.80%	Income contingent	4 290	25	860	83	20 590
	Turkey	1961	m	1 800	m	m	Mortgage style	-	1-2	1 780	20	3 560
	United Kingdom[8]	1990	m	5 480	No real interest rate (2.6%)	No real interest rate (2.6%)	Income contingent	24 240	m	9% of income amount above income threshold	79% of eligible students	14 220
	United States	1970s	55	6 430	5% (interest subsidised for low-income students)	5% (interest subsidised for low-income students)	Mortgage style	-	10	m	65 (school year 1999/2000)	19 400 (school year 1999/2000)
Partner country	**Estonia**[2]	1995	n	2 260	5%, rest paid by government	5%, rest paid by government	Mortgage style	a	7-8	m	m	m

1. Including commonwealth countries.
2. Loan guaranteed by the state rather than public loan.
3. Loan made to the parents of the student, and only parents have to pay back the loan.
4. Loan outside Quebec. In Quebec, there are only private loans guaranteed by the government.
5. The proportion of students refers to all tertiary education. Average amount of loan includes foreign students.
6. Average amount of loan for students in tertiary-type A first qualification programme.
7. Average amount of loan for students in tertiary education.
8. Annual gross amount of loan refers to students in England.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664366467748

B5

Table B5.4.

Public subsidies for households and other private entities as a percentage of total public expenditure on education and GDP, for tertiary education (2006)

Direct public expenditure on educational institutions and subsidies for households and other private entities

		Direct public expenditure for institutions	Public subsidies for education to private entities						Subsidies for education to private entities as a percentage of GDP
			Financial aid to students				Transfers and payments to other private entities	Total	
			Scholarships/ other grants to households	Student loans	Total	Scholarships/ other grants to households attributable for educational institutions			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD countries	Australia	**69.0**	13.2	17.8	31.0	0.9	n	**31.0**	0.35
	Austria	**75.1**	17.0	m	17.0	m	7.9	**24.9**	0.37
	Belgium	**86.4**	13.6	n	13.6	3.8	n	**13.6**	0.18
	Canada[1]	**81.9**	3.5	13.6	17.1	m	1.0	**18.1**	0.32
	Czech Republic	**95.2**	4.8	a	4.8	m	n	**4.8**	0.05
	Denmark	**70.5**	24.7	4.8	29.5	n	n	**29.5**	0.67
	Finland	**83.3**	16.2	n	16.2	n	0.4	**16.7**	0.32
	France	**92.0**	8.0	a	8.0	m	a	**8.0**	0.10
	Germany	**80.5**	14.4	5.2	19.5	m	n	**19.5**	0.22
	Greece	m	m	m	m	m	m	**m**	m
	Hungary	**84.9**	15.1	n	15.1	n	n	**15.1**	0.16
	Iceland	**76.0**	m	24.0	24.0	m	n	**24.0**	0.33
	Ireland	**85.6**	14.4	n	14.4	m	n	**14.4**	0.16
	Italy	**83.4**	16.6	n	16.6	5.7	n	**16.6**	0.13
	Japan[2]	**76.8**	0.7	22.5	23.2	m	n	**23.2**	0.14
	Korea	**87.1**	2.8	4.4	7.3	2.1	5.6	**12.9**	0.09
	Luxembourg	m	m	m	m	m	m	**m**	m
	Mexico	**93.3**	4.1	2.6	6.7	1.3	n	**6.7**	0.06
	Netherlands	**70.4**	12.3	17.2	29.5	0.7	0.1	**29.6**	0.44
	New Zealand	**57.7**	12.0	30.3	42.3	m	n	**42.3**	0.69
	Norway	**58.3**	13.9	27.8	41.7	m	n	**41.7**	0.86
	Poland[3]	**98.3**	1.7	a	1.7	m	m	**1.7**	0.02
	Portugal	**88.4**	11.6	a	11.6	m	m	**11.6**	0.12
	Slovak Republic[2]	**85.4**	12.9	1.2	14.1	m	0.5	**14.6**	0.13
	Spain	**92.1**	7.9	n	7.9	2.1	n	**7.9**	0.08
	Sweden	**74.2**	10.2	15.6	25.8	a	a	**25.8**	0.48
	Switzerland[3]	**94.6**	2.3	0.2	2.5	m	3.0	**5.4**	0.08
	Turkey[3]	**83.1**	2.9	14.0	16.9	2.9	m	**16.9**	0.15
	United Kingdom	**73.6**	5.6	20.8	26.4	x(4)	n	**26.4**	0.29
	United States	**69.1**	13.1	17.9	30.9	m	m	**30.9**	0.44
	OECD average	***80.9***	***10.2***	***8.9***	***18.4***	***1.6***	***0.7***	***19.1***	***0.27***
Partner countries	Brazil[3]	**91.3**	6.0	1.7	7.7	x(2)	1.0	**8.7**	0.07
	Chile[4]	**52.5**	24.6	22.8	47.5	19.1	n	**47.5**	0.25
	Estonia	**84.2**	8.9	a	8.9	m	6.9	**15.8**	0.15
	Israel	**88.9**	9.8	1.3	11.1	9.5	n	**11.1**	0.11
	Russian Federation[3]	m	m	a	m	a	m	m	m
	Slovenia	**76.6**	23.3	n	23.3	m	n	**23.4**	0.29

1. Year of reference 2005.
2. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
3. Public institutions only.
4. Year of reference 2007.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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INDICATOR B6

ON WHAT RESOURCES AND SERVICES IS EDUCATION FUNDING SPENT?

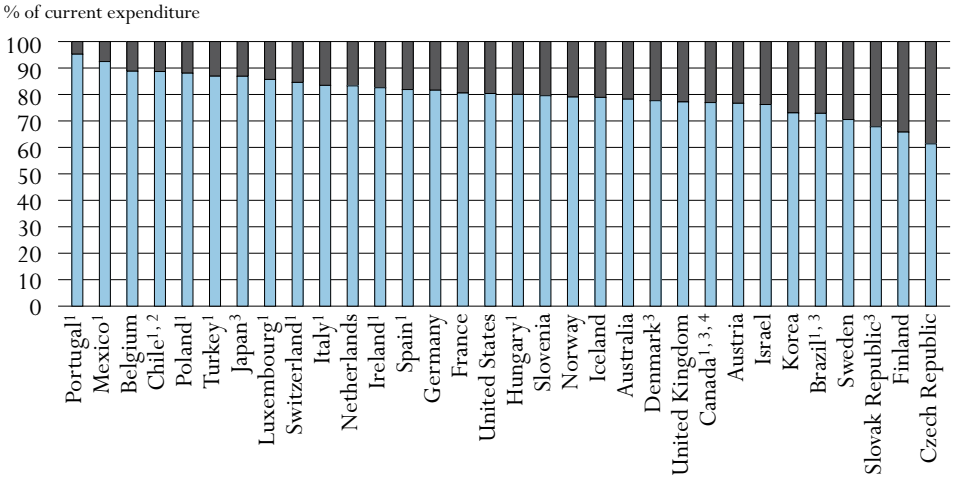
This indicator compares OECD countries with respect to the division of spending between current and capital expenditure and the distribution of current expenditure. It is affected by teachers' salaries (see Indicator D3), pension systems, the age distribution of teachers, the size of the non-teaching staff employed in education (see Indicator D2) and the degree to which expanded enrolments require the construction of new buildings. It also compares how OECD countries' spending is distributed among these different functions of educational institutions.

Key results

Chart B6.1. Distribution of current expenditure on educational institutions for primary, secondary and post-secondary non-tertiary education (2006)

The chart shows the distribution of current spending on educational institutions by resource category. Spending on educational institutions can be broken down into capital and current expenditure. Within current expenditure, one can distinguish between spending on instruction compared to ancillary and R&D services. The biggest item in current spending – teachers' compensation – is examined further in Indicator D3.

In primary, secondary and post-secondary non-tertiary education, taken together, current expenditure accounts for an average of 92% of total spending in OECD countries. In all but three OECD countries, more than 70% of current expenditure on primary, secondary and post-secondary non-tertiary educational institutions is for staff salaries.



1. Public institutions only.
2. Year of reference 2007.
3. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
4. Year of reference 2005.

Countries are ranked in descending order of the share of compensation of all staff in primary, secondary and post-secondary non-tertiary education.

Source: OECD. Table B6.2b. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664447618002

Other highlights of this indicator

- At primary, secondary and post-secondary non-tertiary levels of education, OECD countries spend an average of 20% of current expenditure on purposes other than the compensation of educational personnel.
- The difference between primary and secondary education in terms of the proportion of current expenditure for purposes other than compensation exceeds 5 percentage points only in France, Ireland, Mexico and the United Kingdom and is mainly due to significant variations in teachers' salaries, size of non-teaching staff, class size, instruction hours received by pupils and teaching time given by teachers.
- Compensation of teaching staff is a smaller share of current and capital spending at the tertiary level than at other levels because of the higher cost of facilities and equipment and the construction of new buildings owing to the expansion in enrolments. At the tertiary level, OECD countries spend an average of 32% of current expenditure on purposes other than compensation of educational personnel.
- On average, OECD countries spend 0.2% of GDP on ancillary services provided by primary, secondary and post-secondary non-tertiary institutions. This represents 6% of the total spending on educational institutions. At the high end, Finland, France, Korea, the Slovak Republic, Sweden and the United Kingdom allocate some 10% or more of total expenditure on educational institutions to ancillary services.
- High spending on R&D is a distinctive feature of tertiary institutions and averages over one-quarter of expenditure. The fact that some countries spend much more than others on R&D (Sweden and Switzerland spend 40% or more) helps explain wide differences in overall tertiary spending.

Policy context

The distribution of spending among categories of expenditure can affect the quality of services (such as teachers' salaries), the condition of educational facilities (such as school maintenance) and the education system's capacity to adjust to changing demographic and enrolment trends (such as construction of new schools). Comparisons of how different OECD countries apportion educational expenditure among the various categories can also provide insight into the organisation and operation of their educational institutions. Decisions on the allocation of budgetary and structural resources at the system level eventually feed through to the classroom and affect the nature of instruction and the conditions under which it is provided.

Educational institutions offer a range of services in addition to instruction, and this indicator also compares how spending is distributed among these various functions. At the primary, secondary and post-secondary non-tertiary levels, they may offer meals and free transport to and from school or boarding facilities. At the tertiary level, they may offer housing. Tertiary educational institutions also often conduct a wide range of research activities.

Evidence and explanations

What this indicator does and does not cover

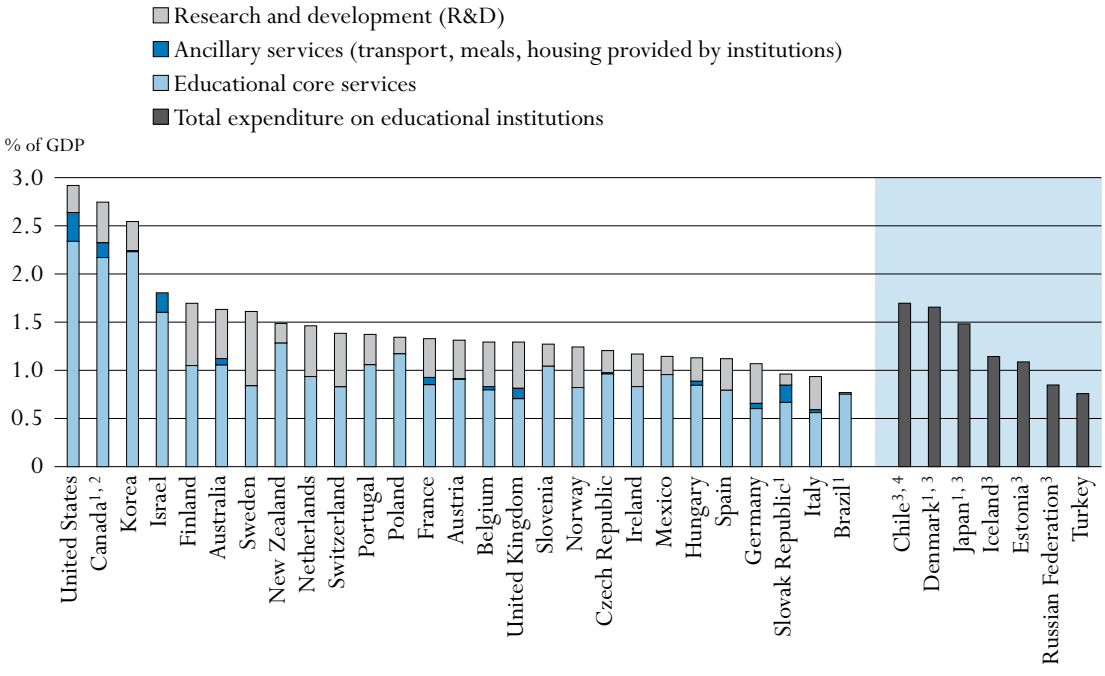
This indicator breaks down educational expenditure by current and capital expenditure and within the three main functions typically fulfilled by educational institutions. It includes costs directly attributable to instruction, such as teachers' salaries or school materials, and costs indirectly related to the provision of instruction, such as administration, instructional support services, teachers' professional development, student counselling, or the construction and/or provision of school facilities. It also includes spending on ancillary services such as the student welfare services provided by educational institutions. Finally, it includes spending on research and development (R&D) conducted at tertiary institutions, in the form either of separately funded R&D activities or of the proportion of salaries and current expenditure in general education budgets that is attributable to the research activities of staff.

The indicator does not include public and private R&D spending outside educational institutions, such as R&D spending in industry. A review of R&D spending in sectors other than education is provided in the publication *Main Science and Technology Indicators* (OECD, 2009d). Expenditure on student welfare services provided by educational institutions only includes public subsidies for those services; expenditure by students and their families on services that are provided by institutions on a self-funding basis is not included in this indicator.

Expenditure on instruction, R&D and ancillary services

Below the tertiary level, the majority of educational funding is directed to core services, such as instruction. At the tertiary level, other services – particularly those related to R&D activities – can account for a significant proportion of educational spending. Differences among OECD countries in expenditure on R&D activities therefore explain a significant part of the differences in overall educational expenditure per tertiary-level student (Chart B6.2). For example, high levels of R&D spending (between 0.4% and 0.8% of GDP) in tertiary educational institutions in Australia, Austria, Belgium, Canada, Finland, France, Germany, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom imply that spending on educational institutions per student in these countries would be considerably lower if the R&D component were excluded (see Table B1.1a).

Chart B6.2. Expenditure on educational core services, R&D and ancillary services in tertiary educational institutions as a percentage of GDP (2006)



1. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
2. Year of reference 2005.
3. Total expenditure at tertiary level including expenditure on research and development (R&D).
4. Year of reference 2007.

Countries are ranked in descending order of total expenditure on educational institutions in tertiary institutions.

Source: OECD. Table B6.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Student welfare services

Student welfare services (and in some cases services for the general public) are an integral function of schools and universities in many OECD countries. Countries finance these ancillary services with different combinations of public expenditure, public subsidies and fees paid by students and their families.

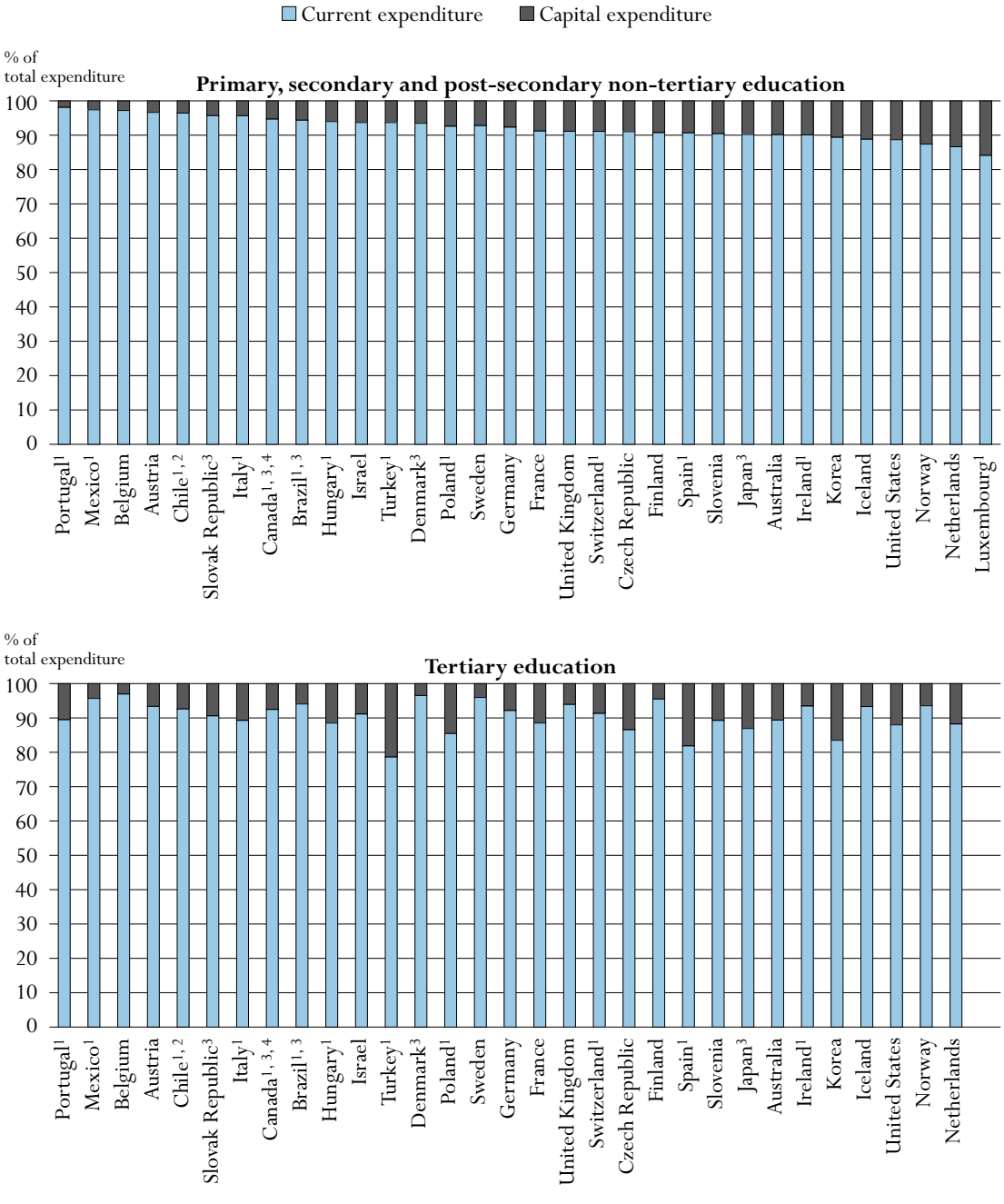
On average, OECD countries spend 0.2% of GDP on ancillary services provided by primary, secondary and post-secondary non-tertiary institutions. This represents 6% of total spending on these institutions. At the high end, Finland, France, Korea, the Slovak Republic, Sweden and the United Kingdom dedicate some 10% or more of their total spending on educational institutions to ancillary services (Table B6.1).

At the tertiary level, ancillary services are self-financed more often than at primary or secondary levels. On average, expenditure on subsidies for ancillary services at the tertiary level amounts to less than 0.1% of GDP but represents 0.15% in Canada, 0.18% in the Slovak Republic and 0.2% in the partner country Israel and up to 0.3% in the United States (Table B6.1).

B6

Chart B6.3. Distribution of current and capital expenditure on educational institutions (2006)

By resource category and level of education



1. Public institutions only.
2. Year of reference 2007.
3. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
4. Year of reference 2005.

Countries are ranked in descending order of the share of current expenditure on primary, secondary and post-secondary non-tertiary education.

Source: OECD. Table B6.2b. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664447618002

Current and capital expenditure and the distribution of current expenditure

Educational expenditure includes both current and capital expenditure. Capital expenditure on educational institutions refers to spending on assets that last longer than one year and includes spending on the construction, renovation and major repair of buildings. Current expenditure on educational institutions comprises spending on school resources used each year for the operation of schools.

The labour-intensive nature of the educational process explains the large proportion of current spending in total educational expenditure. In primary, secondary, and post-secondary non-tertiary education, taken together, current expenditure accounts on average for nearly 92% of total spending across all OECD countries. There is significant variation among OECD countries in the proportions of current and capital expenditure: at the primary, secondary and post-secondary non-tertiary levels, taken together, the proportion of current expenditure ranges from 84% in Luxembourg to 97% or more in Belgium, Mexico and Portugal (Table B6.2b and Chart B6.3).

Proportion of current expenditure on educational institutions allocated to compensation of teachers and other staff

Current expenditure on educational institutions can be further subdivided into three broad functional categories: compensation of teachers, compensation of other staff and other current expenditures (teaching materials and supplies, maintenance of school buildings, preparation of students' meals, and rental of school facilities). The amount allocated to each of these functional categories depends partly on current and projected changes in enrolments, on salaries of educational personnel, and on the costs of maintenance and construction of educational facilities.

The salaries of teachers and other staff employed in education account for the largest proportion of current expenditure in all OECD countries. Expenditure on compensation of educational personnel accounts on average for 80% of current expenditure at the primary, secondary and post-secondary non-tertiary levels of education, taken together. In all countries except the Czech Republic, Finland and the Slovak Republic, 70% or more of current expenditure at the these levels is spent on staff salaries. The proportion devoted to the compensation of educational personnel is 90% or more in Mexico and Portugal (Table B6.2b).

There is very little difference in the average proportion of expenditure on compensation of personnel between primary and secondary levels of education. The only exceptions to this pattern are France, Ireland, Mexico and the United Kingdom where the difference between the two exceeds 5 percentage points (Table B6.2a). This is mainly due to significant variations in teachers' salaries, class size, size of non-teaching staff, instruction hours received by students and teaching time provided by teachers (see Indicators B7, D1, D2, D3 and D4).

OECD countries with relatively small education budgets, such as Mexico, Portugal and Turkey, tend to direct a larger proportion of current educational expenditure to compensation of personnel and a smaller proportion to sub-contracts for services such as support services (*e.g.* maintenance of school buildings), ancillary services (*e.g.* preparation of students' meals), and rental of school buildings and other facilities.

In Denmark, France, the United Kingdom and the United States, and the partner country Slovenia, more than 20% of current expenditure in primary, secondary and post-secondary non-tertiary education, taken together, goes towards compensation of non-teaching staff, while in Austria, Ireland, Korea, Spain and the partner country Chile, the figure is 10% or less. These differences are likely to reflect the degree to which educational personnel such as principals, guidance counsellors, bus drivers, school nurses, janitors and maintenance workers are included in this category (Table B6.2b).

OECD countries spend, on average, 32% of current expenditure at the tertiary level on purposes other than the compensation of educational personnel. This is due to the higher cost of facilities and equipment in higher education (Table B6.2b).

Proportions of capital expenditure

At the tertiary level, the proportion of total expenditure for capital outlays is larger than at the primary, secondary and post-secondary non-tertiary levels (9.7% versus 8.0%), generally because of greater differentiation and sophistication of teaching facilities. In 14 out of the 31 OECD and partner countries for which data are available, the proportion directed to capital expenditure at the tertiary level is 10% or more and among these countries in Korea, Spain and Turkey it is above 15% (Chart B6.3). Differences are likely to reflect how tertiary education is organised in each country as well as the degree to which the expansion in enrolments requires the construction of new buildings.

Definitions and methodologies

Data refer to the financial year 2006 and are based on the UOE data collection on education statistics administered by the OECD in 2008 (for details see Annex 1 at *www.oecd.org/edu/eag2009*).

The distinction between current and capital expenditure on educational institutions is taken from the standard definition used in national income accounting. Current expenditure refers to spending on goods and services consumed within the current year and requiring recurrent production in order to sustain the provision of educational services. Capital expenditure refers to spending on assets which last longer than one year, including construction, renovation or major repair of buildings and new or replacement equipment. The capital expenditure reported here represents the value of educational capital acquired or created during the year in question – that is, the amount of capital formation – regardless of whether the capital expenditure was financed from current revenue or through borrowing. Neither current nor capital expenditure includes debt servicing.

Calculations cover expenditure by public institutions or, where available, by both public and private institutions.

Current expenditure on educational institutions other than on compensation of personnel includes expenditure on sub-contracted services such as support services (*e.g.* maintenance of school buildings), ancillary services (*e.g.* preparation of meals for students) and rental of school buildings and other facilities. These services are obtained from outside providers, unlike the services provided by the education authorities or by the educational institutions using their own personnel.

Expenditure on R&D includes all expenditure on research performed at universities and other tertiary education institutions, regardless of whether the research is financed from general institutional funds or through separate grants or contracts from public or private sponsors. The classification of expenditure is based on data collected from the institutions carrying out R&D rather than on the sources of funds.

Ancillary services are those services provided by educational institutions that are peripheral to the main educational mission. The two main components of ancillary services are student welfare services and services for the general public. At primary, secondary and post-secondary non-tertiary levels, student welfare services include meals, school health services and transport to and from school. At the tertiary level, they include residence halls (dormitories), dining halls and health care. Services for the general public include museums, radio and television broadcasting, sports and recreational and cultural programmes. Expenditure on ancillary services, including fees paid by students or households, is excluded.

Educational core services are estimated as the residual of all expenditure, that is, total expenditure on educational institutions net of expenditure on R&D and ancillary services.

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Table B6.1.

Expenditure on educational institutions by service category as a percentage of GDP (2006)

Expenditure on instruction, R&D and ancillary services in educational institutions and private expenditure on educational goods purchased outside educational institutions

		Primary, secondary and post-secondary non-tertiary education				Tertiary education				
		Expenditure on educational institutions			Private payments on instructional services/ goods outside educational institutions	Expenditure on educational institutions				Private payments on instructional services/ goods outside educational institutions
		Core educational services	Ancillary services (transport, meals, housing provided by institutions)	Total		Core educational services	Ancillary services (transport, meals, housing provided by institutions)	Research & development at tertiary institutions	Total	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	**Australia**	3.84	0.15	**3.99**	0.12	1.05	0.07	0.51	**1.63**	0.14
	Austria	3.54	0.17	**3.71**	m	0.91	0.01	0.40	**1.31**	m
	Belgium	3.92	0.15	**4.06**	0.11	0.80	0.03	0.46	**1.29**	0.16
	Canada[1, 2]	3.54	0.21	**3.75**	m	2.17	0.15	0.42	**2.75**	0.14
	Czech Republic	2.76	0.23	**2.99**	0.05	0.96	0.01	0.23	**1.20**	0.04
	Denmark[2]	x(3)	x(3)	**4.43**	0.51	x(8)	a	x(8)	**1.66**	0.67
	Finland	3.37	0.41	**3.77**	m	1.05	a	0.65	**1.70**	m
	France	3.42	0.51	**3.93**	0.18	0.85	0.08	0.40	**1.33**	0.07
	Germany	3.03	0.07	**3.11**	0.14	0.60	0.05	0.41	**1.07**	0.08
	Greece	m	m	**m**	m	m	m	m	**m**	m
	Hungary[3]	3.16	0.26	**3.41**	m	0.84	0.04	0.24	**1.13**	m
	Iceland	x(3)	x(3)	**5.30**	m	x(8)	x(8)	x(8)	**1.14**	m
	Ireland	3.40	0.09	**3.50**	m	0.83	x(8)	0.34	**1.17**	m
	Italy	3.35	0.12	**3.46**	0.37	0.56	0.03	0.34	**0.94**	0.13
	Japan[2]	x(3)	x(3)	**2.84**	0.78	x(8)	x(8)	x(8)	**1.48**	0.04
	Korea	3.87	0.44	**4.30**	m	2.23	0.01	0.30	**2.54**	m
	Luxembourg[3]	x(3)	x(3)	**3.33**	m	m	m	m	**m**	m
	Mexico	3.79	m	**3.79**	0.20	0.96	m	0.19	**1.14**	0.05
	Netherlands	3.73	n	**3.73**	0.20	0.94	n	0.53	**1.46**	0.07
	New Zealand	x(3)	x(3)	**4.34**	n	1.28	x(8)	0.20	**1.49**	n
	Norway	x(3)	x(3)	**3.65**	m	0.82	n	0.42	**1.24**	m
	Poland[3]	3.69	0.02	**3.71**	0.15	1.17	n	0.17	**1.34**	0.05
	Portugal[3]	3.63	0.02	**3.65**	0.06	1.06	x(8)	0.31	**1.37**	m
	Slovak Republic[2]	2.37	0.36	**2.73**	0.41	0.67	0.18	0.12	**0.96**	0.21
	Spain	2.84	0.06	**2.91**	m	0.79	n	0.33	**1.12**	m
	Sweden	3.69	0.42	**4.11**	m	0.84	n	0.77	**1.61**	m
	Switzerland[3]	x(3)	x(3)	**4.22**	m	0.83	x(8)	0.56	**1.38**	m
	Turkey[3]	1.89	0.05	**1.94**	m	x(8)	x(8)	m	**0.76**	m
	United Kingdom	3.51	0.74	**4.26**	m	0.71	0.11	0.48	**1.29**	0.15
	United States	3.74	0.31	**4.04**	a	2.34	0.30	0.28	**2.92**	a
	OECD average	***3.37***	***0.23***	***3.69***	***0.22***	***1.05***	***0.05***	***0.38***	***1.44***	***0.13***
Partner countries	**Brazil**[3]	x(3)	x(3)	**3.77**	m	0.75	x(5)	0.02	**0.77**	m
	Chile[4]	3.23	0.20	**3.43**	0.02	x(8)	x(8)	x(8)	**1.70**	n
	Estonia	x(3)	x(3)	**3.46**	m	x(8)	x(8)	n	**1.09**	m
	Israel	4.17	0.20	**4.37**	0.26	1.60	0.20	m	**1.80**	n
	Russian Federation[3]	x(3)	x(3)	**2.00**	m	x(8)	x(8)	x(8)	**0.85**	m
	Slovenia	4.00	0.17	**4.16**	m	1.04	n	0.23	**1.27**	m

1. Year of reference 2005.
2. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
3. Public institutions only.
4. Year of reference 2007.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664447618002

Table B6.2a.

Expenditure on educational institutions by resource category in primary and secondary education (2006)

Distribution of total and current expenditure on educational institutions from public and private sources

		Primary education						Secondary education					
		Percentage of total expenditure		Percentage of current expenditure				Percentage of total expenditure		Percentage of current expenditure			
		Current	Capital	Compensation of teachers	Compensation of other staff	Compensation of all staff	Other current expenditure	Current	Capital	Compensation of teachers	Compensation of other staff	Compensation of all staff	Other current expenditure
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries	Australia	**90.2**	**9.8**	64.4	16.4	80.7	19.3	**89.9**	**10.1**	59.4	17.2	76.5	23.5
	Austria	**95.0**	**5.0**	66.2	8.8	75.0	25.0	**97.3**	**2.7**	67.8	9.9	77.7	22.3
	Belgium	**96.3**	**3.7**	68.8	20.7	89.5	10.5	**97.7**	**2.3**	70.4	18.0	88.4	11.6
	Canada	m	m	m	m	m	m	m	m	m	m	m	m
	Czech Republic	**88.3**	**11.7**	47.3	18.0	65.3	34.7	**91.8**	**8.2**	47.5	12.9	60.4	39.6
	Denmark[1]	**93.1**	**6.9**	51.1	27.5	78.6	21.4	**93.8**	**6.2**	52.0	24.9	76.9	23.1
	Finland	**91.2**	**8.8**	57.9	9.3	67.2	32.8	**90.5**	**9.5**	52.8	12.3	65.0	35.0
	France	**93.5**	**6.5**	52.9	23.0	75.9	24.1	**90.3**	**9.7**	59.4	23.2	82.6	17.4
	Germany	**91.9**	**8.1**	x(5)	x(5)	82.5	17.5	**92.6**	**7.4**	x(11)	x(11)	81.9	18.1
	Greece	m	m	m	m	m	m	m	m	m	m	m	m
	Hungary[2]	**95.0**	**5.0**	x(5)	x(5)	80.5	19.5	**93.7**	**6.3**	x(11)	x(11)	80.0	20.0
	Iceland	**87.5**	**12.5**	x(5)	x(5)	79.3	20.7	**90.1**	**9.9**	x(11)	x(11)	78.5	21.5
	Ireland[2]	**91.6**	**8.4**	75.4	12.0	87.4	12.6	**88.7**	**11.3**	72.5	5.2	77.8	22.2
	Italy[2]	**95.1**	**4.9**	67.8	16.1	83.9	16.1	**96.0**	**4.0**	68.1	16.1	84.2	15.8
	Japan[1]	**90.4**	**9.6**	x(5)	x(5)	87.2	12.8	**90.1**	**9.9**	x(11)	x(11)	86.6	13.4
	Korea	**88.4**	**11.6**	62.7	10.9	73.7	26.3	**90.1**	**9.9**	66.6	6.0	72.6	27.4
	Luxembourg[2]	**81.6**	**18.4**	75.4	9.8	85.2	14.8	**87.0**	**13.0**	73.2	13.0	86.2	13.8
	Mexico[2]	**97.6**	**2.4**	86.0	9.3	95.3	4.7	**97.2**	**2.8**	75.8	12.9	88.7	11.3
	Netherlands	**87.2**	**12.8**	x(5)	x(5)	86.2	13.8	**86.3**	**13.7**	x(11)	x(11)	81.6	18.4
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m
	Norway	**88.1**	**11.9**	x(5)	x(5)	78.5	21.5	**86.8**	**13.2**	x(11)	x(11)	79.5	20.5
	Poland[2]	**91.8**	**8.2**	x(5)	x(5)	71.2	28.8	**93.3**	**6.7**	x(11)	x(11)	70.9	29.1
	Portugal[2]	**98.8**	**1.2**	85.5	10.6	96.1	3.9	**97.5**	**2.5**	84.1	10.5	94.5	5.5
	Slovak Republic[1]	**96.0**	**4.0**	51.3	13.3	64.6	35.4	**95.6**	**4.4**	53.9	15.2	69.1	30.9
	Spain[2]	**91.5**	**8.5**	71.8	11.1	82.9	17.1	**90.2**	**9.8**	72.0	9.2	81.2	18.8
	Sweden	**92.8**	**7.2**	53.7	19.2	72.8	27.2	**92.7**	**7.3**	50.0	18.9	68.9	31.1
	Switzerland[2]	**89.7**	**10.3**	70.9	13.1	84.0	16.0	**92.3**	**7.7**	72.0	13.1	85.1	14.9
	Turkey[2]	**94.3**	**5.7**	x(5)	x(5)	87.1	12.9	**92.3**	**7.7**	x(11)	x(11)	86.4	13.6
	United Kingdom	**89.4**	**10.6**	45.1	24.3	69.4	30.6	**92.4**	**7.6**	59.4	23.1	82.5	17.5
	United States	**88.7**	**11.3**	54.7	25.6	80.4	19.6	**88.7**	**11.3**	54.7	25.6	80.4	19.6
	OECD average	*91.7*	*8.3*	*63.6*	*15.7*	*80.0*	*20.0*	*92.0*	*8.0*	*63.8*	*15.1*	*79.4*	*20.6*
Partner countries	Brazil[1, 2]	**93.3**	**6.7**	x(5)	x(5)	72.9	27.1	**95.2**	**4.8**	x(11)	x(11)	72.9	27.1
	Chile[2, 3]	**96.6**	**3.4**	84.1	5.0	89.1	10.9	**96.3**	**3.7**	83.3	4.9	88.3	11.7
	Estonia	m	m	m	m	m	m	m	m	m	m	m	m
	Israel	**92.9**	**7.1**	x(5)	x(5)	74.7	25.3	**94.4**	**5.6**	x(11)	x(11)	77.9	22.1
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m
	Slovenia	**x(7)**	**x(8)**	x(9)	x(10)	x(11)	x(12)	**90.4**	**9.6**	46.9	32.6	79.5	20.5

1. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
2. Public institutions only.
3. Year of reference 2007.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664447618002

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Table B6.2b.

Expenditure on educational institutions by resource category and level of education (2006)

Distribution of total and current expenditure on educational institutions from public and private sources

		Primary, secondary and post-secondary non-tertiary education						Tertiary education					
		Percentage of total expenditure		Percentage of current expenditure				Percentage of total expenditure		Percentage of current expenditure			
		Current	Capital	Compensation of teachers	Compensation of other staff	Compensation of all staff	Other current expenditure	Current	Capital	Compensation of teachers	Compensation of other staff	Compensation of all staff	Other current expenditure
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries	Australia	90.1	9.9	61.2	17.0	78.2	21.8	89.4	10.6	33.6	28.4	62.0	38.0
	Austria	96.6	3.4	66.8	9.9	76.7	23.3	93.4	6.6	45.9	17.0	62.9	37.1
	Belgium	97.2	2.8	69.8	18.9	88.8	11.2	97.0	3.0	52.5	23.9	76.4	23.6
	Canada[1, 2, 3]	94.7	5.3	61.7	15.2	76.9	23.1	92.5	7.5	36.7	26.9	63.6	36.4
	Czech Republic	91.0	9.0	47.3	14.0	61.3	38.6	86.5	13.5	31.0	19.8	50.8	49.2
	Denmark[2]	93.5	6.5	51.6	26.0	77.7	22.3	96.5	3.5	50.8	24.5	75.4	24.6
	Finland	90.7	9.3	54.5	11.3	65.8	34.2	95.5	4.5	34.7	28.3	63.0	37.0
	France	91.2	8.8	57.4	23.1	80.6	19.4	88.5	11.5	51.8	28.5	80.3	19.7
	Germany	92.3	7.7	x(5)	x(5)	81.6	18.4	92.2	7.8	x(11)	x(11)	67.6	32.4
	Greece	m	m	m	m	m	m	m	m	m	m	m	m
	Hungary[3]	94.0	6.0	x(5)	x(5)	80.0	20.0	88.5	11.5	x(11)	x(11)	68.2	31.8
	Iceland	88.8	11.2	x(5)	x(5)	78.9	21.1	93.3	6.7	x(11)	x(11)	88.2	11.8
	Ireland[3]	90.1	9.9	74.1	8.5	82.6	17.4	93.5	6.5	49.6	25.1	74.7	25.3
	Italy[3]	95.7	4.3	67.5	16.0	83.4	16.6	89.3	10.7	45.3	23.7	69.0	31.0
	Japan[2]	90.2	9.8	x(5)	x(5)	86.9	13.1	86.9	13.1	x(11)	x(11)	60.2	39.8
	Korea	89.4	10.6	65.1	8.0	73.0	27.0	83.5	16.5	34.7	16.4	51.1	48.9
	Luxembourg[3]	84.1	15.9	74.4	11.3	85.7	14.3	m	m	m	m	m	m
	Mexico[3]	97.4	2.6	81.6	10.9	92.4	7.6	95.7	4.3	58.5	14.6	73.1	26.9
	Netherlands	86.6	13.4	x(5)	x(5)	83.3	16.7	88.2	11.8	x(11)	x(11)	68.8	31.2
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m
	Norway	87.4	12.6	x(5)	x(5)	79.0	21.0	93.6	6.4	x(11)	x(11)	64.6	35.4
	Poland[3]	92.6	7.4	x(5)	x(5)	88.0	12.0	85.5	14.5	x(11)	x(11)	71.0	28.6
	Portugal[3]	98.1	1.9	84.7	10.5	95.2	4.8	89.5	10.5	x(11)	x(11)	69.3	30.7
	Slovak Republic[2]	95.7	4.3	53.2	14.7	67.8	32.2	90.6	9.4	29.0	21.2	50.2	49.8
	Spain[3]	90.7	9.3	71.9	10.0	81.9	18.1	81.9	18.1	59.7	20.8	80.6	19.4
	Sweden	92.8	7.2	51.5	19.0	70.5	29.5	96.0	4.0	x(11)	x(11)	62.8	37.2
	Switzerland[3]	91.1	8.9	71.4	13.1	84.6	15.4	91.3	8.7	53.0	23.1	76.1	23.9
	Turkey[3]	93.7	6.3	x(5)	x(5)	86.9	13.1	78.6	21.4	x(11)	x(11)	72.6	27.4
	United Kingdom	91.1	8.9	53.6	23.6	77.2	22.8	93.9	6.1	42.1	30.5	72.5	27.5
	United States	88.7	11.3	54.7	25.6	80.4	19.6	88.0	12.0	28.2	36.2	64.4	35.6
	OECD average	*92.0*	*8.0*	*63.7*	*15.3*	*80.2*	*19.8*	*90.3*	*9.7*	*43.4*	*24.1*	*68.1*	*31.9*
Partner countries	Brazil[2, 3]	94.4	5.6	x(5)	x(5)	72.9	27.1	94.1	5.9	x(11)	x(11)	79.9	20.1
	Chile[3, 4]	96.4	3.6	83.7	5.0	88.7	11.3	92.6	7.4	x(11)	x(11)	63.2	36.8
	Estonia	m	m	m	m	m	m	m	m	m	m	m	m
	Israel	93.7	6.3	x(5)	x(5)	76.2	23.8	91.1	8.9	x(11)	x(11)	76.1	23.9
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m
	Slovenia	90.4	9.6	46.9	32.6	79.5	20.5	89.3	10.7	41.3	26.8	68.1	31.9

1. Year of reference 2005.
2. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details.
3. Public institutions only (for Canada, at tertiary level only).
4. Year of reference 2007.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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INDICATOR B7

WHICH FACTORS INFLUENCE THE LEVEL OF EXPENDITURE?

This indicator examines the policy choices countries make when investing their resources in primary and secondary education, such as trade-offs between the hours that students spend in the classroom, the number of teaching hours of teachers, class sizes (proxy measure) and teachers' salaries. In the first stage, the differences in the combination of factors that influence the salary cost per student are analysed separately at primary, lower secondary and upper secondary levels of education. In the second stage, the differences in salary cost per student between these levels of education are compared.

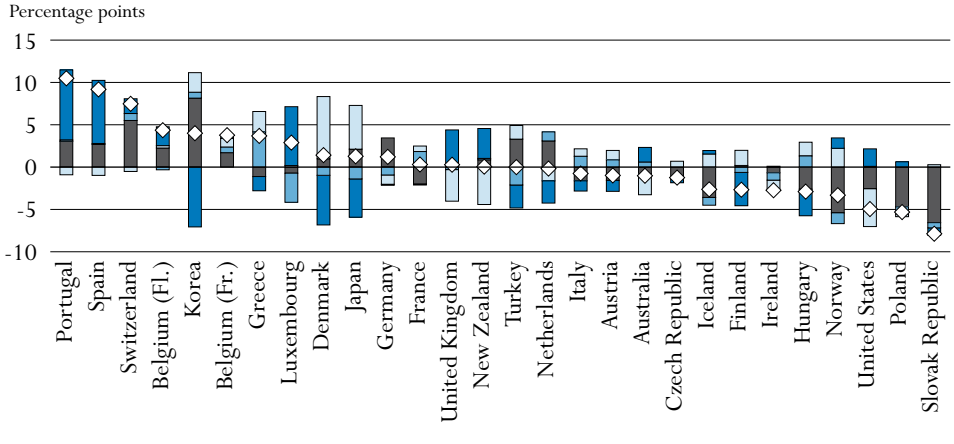
Key Results

Chart B7.1. Contribution of various factors to salary cost per student as a percentage of GDP per capita, at the upper secondary level of education (2006)

This chart shows the contribution (in percentage points) of the factors to the difference between salary cost per student (as a percentage of GDP per capita) in the country and the OECD average. For example, in Portugal, the salary cost per student is 11 percentage points higher than the OECD average. This is because Portugal has higher salaries (compared to GDP per capita) than the average, an above average instruction time for students and smaller class sizes than the average. However these effects are slightly dampened by a larger number of teaching hours for teachers than the average.

Salary as % of GDP/capita
1/estimated class size
Instruction time
Difference with OECD average
1/teaching time

Salary cost per student varies significantly between countries, from 3.6% of GDP per capita in the Slovak Republic (less than half of the OECD average rate of 11.4%) to over six times that rate in Portugal (22%, nearly twice the OECD average). Four factors influence these differences – salary level, instruction time for students, teaching time of teachers and average class size – so that a given level of salary cost per student can result from many different combinations of the four factors. For example, in Korea and Greece the salary cost per student (as a percentage of GDP per capita) is 15.5 and 15.2%, respectively, both notably higher than the OECD average. However, Korea's high salary cost results mainly from higher than average teacher salary levels and relatively large class sizes, while Greece reaches this high salary cost through a relatively high instruction time for students and lower than average teaching time for teachers.



Countries are ranked in descending order of the difference between the salary cost in percentage of GDP per capita and the OECD average.

Source: OECD. Table B7.3. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Other highlights of this indicator

- Similar levels of expenditure among countries in primary and secondary education can mask a variety of contrasting policy choices. This helps to explain to why there is no simple relationship between the overall spending on education and the level of student performance.

- The higher the level of education analysed, the higher the impact of teachers' salaries and the lower the impact of class size on salary cost per student as a percentage of GDP (compared to the OECD average). The main examples of this pattern are Austria, Belgium (Flemish Community), France, Norway, Switzerland and Turkey, where the main drivers of salary cost per student are teachers' salaries at the upper secondary level, and class size at the primary level.

- Together, class size and teaching time have more impact on the measure of salary cost per student at the lower secondary level, whereas teachers' salaries are the main driver for salary cost per student at upper secondary level (see Box B7.2). However, lower secondary levels of education present similar patterns to upper secondary levels of education with respect to the main drivers of above and below OECD average levels of salary cost per student as a percentage of GDP per capita.

- At the primary level of education, similarities and differences between countries are less obvious than at the upper secondary level of education, but class size is the main driver for the difference with average salary cost per student as a percentage of GDP per capita in 16 out of the 29 OECD countries with available data.

Policy context

The relationship between the resources devoted to education and the outcomes achieved has been the focus of much education policy interest in recent years, as governments seek to achieve more and better education for the entire population. However, given the increasing pressures on public budgets, there is intense interest in ensuring that funding – public funding, in particular – is well directed in order for the desired outcomes to be achieved in the most effective way possible. Internationally, there is, of course, much attention to which education systems achieve the most in terms of the quality and equity of learning outcomes, but there is also considerable interest in knowing which systems achieve the most based on provided inputs. What are the main factors that drive investment in education? Would better performance be achieved if one of these factors were modified? Some of these questions have been addressed in the 2008 edition of *Education at a Glance* (Indicator B7). This edition focuses on the way a given level of expenditure in primary and secondary education can be reached through different combinations of factors. If the efficiency of educational services is to increase, countries must consider their choices carefully and improve their knowledge base of how such choices relate to value for money.

Evidence and explanations

Many factors affect the relationship between spending per student and student performance. They include the organisation and management of schooling within the system (*e.g.* layers of management and the distribution of decision making, the geographic dispersion of the population), the organisation of the immediate learning environment of students (*e.g.* class size, hours of instruction) and the quality of the teaching workforce, as well as characteristics of the students themselves, most notably their socio-economic backgrounds.

Countries with similar levels of spending on education may reach different performance levels. Some results suggest that there are possibilities for reducing inputs while holding outputs constant, or, on the contrary, for maximising outputs while holding inputs constant. In *Education at a Glance 2008,* for instance, Indicator B7 showed that among OECD countries, there is the potential for increasing learning outcomes by 22% while maintaining current levels of resources (output efficiency).

The level of expenditure is therefore not the only factor to be taken into account when analysing the efficiency of the resources used in education. Since a given level of expenditure can result from various differences in education systems, analyses of differences between countries that have an impact on the level of expenditure may elucidate differences in performance.

Teachers' compensation usually makes up the largest part of expenditure on education and, as a consequence, of expenditure per student. It is a function of instruction time of students, teaching time of teachers, teachers' salaries and the number of teachers needed to teach students, which depends on class size (see Box B7.1). As a consequence, differences among countries in these four factors may explain differences in the level of expenditure per student. In the same way, a given level of expenditure may result from a different combination of these factors; for example, teachers' salaries may be higher in some countries than in others, or the amount of students' instruction time may differ.

Box B7.1. Relationship between salary cost per student and instruction time of students, teaching time of teachers, teachers' salaries and class size

One way to analyse the factors that have an impact on expenditure per student and measure the extent of their effects is to compare the differences between national figures and the OECD average. This analysis aims at computing the differences between expenditure per student between countries and the OECD average, and then calculating the contribution of different factors to this variation.

This is based on a mathematical relationship between the different factors taken into account and follows the method presented in the Canadian publication *Education Statistics Bulletin (2005)* (see some explanations given in Annex 3). Educational expenditure is mathematically linked to many factors related to the school context of a country (number of hours of instruction time for students, number of teaching hours for teachers, estimated class size) and one factor relating to teachers (statutory salary):

Expenditure per student = (compensation of teachers + other expenditure)/number of students

Expenditure is broken down into the compensation of teachers and other expenditure (defined as all expenditure other than the compensation of teachers). The compensation of teachers divided by the number of students, or "the salary cost per student" (CCS), is estimated through:

$$CCS = SAL \times instT \times \frac{1}{teachT} \times \frac{1}{ClassSize} = \frac{SAL}{Ratiostud/teacher}$$

SAL: teachers' salaries (estimated by statutory salary after 15 years of experience)
instT: instruction time of students (estimated as the annual intended instruction time for students)
teachT: teaching time of teachers (estimated as the annual number of teaching hours for teachers)
ClassSize: a proxy for class size
Ratiostud/teacher: the ratio of students to teaching staff

With the exception of class size (which is not computed at upper secondary level, as class sizes are difficult to define and compare as students at this level may attend several classes depending on the subject area), values for the different variables can be obtained from the indicators published in *Education at a Glance 2008* (chapter D). However, for the purpose of the analysis, a "theoretical" class size or proxy class size is estimated based on the ratio of students to teaching staff and the number of teaching hours and instruction hours (see Box D2.1). As a proxy, this estimated class size should be interpreted with caution. To ease the reading, the "estimated class size " is referred to as "class size" in the text.

Using this mathematical relationship and comparing values for the four factors between one country and the OECD average allows one to measure both the direct and indirect contribution of each of these four factors to the variation of salary cost per student between a country and the OECD average (for more detail see Annex 3). For example, in the case where only two factors interact, if a worker receives a 10% increase of the hourly wage and increases the number of hours of work by 20%, their earnings will increase by 32%, as a consequence of the direct contribution of each of these variations (0.1 +0.2) and the indirect contribution of these variations due to the combination of these two factors (0.1*0.2).

Difference in the combination of factors at upper secondary level of education

The columns of Table B7.3 present the level of teacher salary cost, as well as the contribution the four factors make to the difference from the OECD average at the upper secondary level of education. Salary cost per student varies from USD 574 in the Slovak Republic to about USD 10 065 in Luxembourg. In Luxembourg, the salary cost per student is USD 6 633 higher than the OECD average. Teachers' salaries account for most of this difference (USD 4 918) as the level of salary in Luxembourg is much higher than the OECD average. In the Slovak Republic, as well, teachers' salaries account for the large difference from the OECD average salary cost per student, although in the opposite direction. The salary cost per student in the Slovak Republic is USD 2 858 lower than OECD average, and low teachers' salaries (compared to the OECD average) contribute USD 2 536 to this difference.

However, the level of teachers' salaries and, as a consequence, the level of the salary cost per student, depend on a country's relative wealth. To control for these differences in wealth level between countries, the analysis has also been made using levels of teachers' salaries (and salary cost per student) relative to GDP per capita. The second part of the Table B7.3 presents salary cost as a percentage of GDP per capita to control for the effect of relative wealth on salary cost. In this table, the contribution that the four factors make to the difference in the salary cost per student (as a percentage of GDP per capita) between the country and the OECD average is shown in percentage points.

Salary cost per student varies a great deal between countries, from 3.6% of GDP per capita in the Slovak Republic (less than half of the OECD average rate of 11.4%) to over six times that rate in Portugal (22.0%, nearly twice the OECD average). In Portugal, the salary cost per student (as a percentage of GDP per capita) is 10.6 percentage points higher than the OECD average and this difference is mainly driven by a significantly below average class size compared to other OECD countries. However, in 15 out of the 28 OECD countries with available data, teachers' salaries are the main driver of the deviation of salary cost per student from the OECD average in upper secondary education (Table B7.2, Chart B7.1 and Box B7.2).

The four factors influencing salary cost interact differently in different countries, and reflect the range of policy choices that governments make. For example, in both Korea and Greece, salary cost per student (as a percentage of GDP per capita) is well above the OECD average (15.5% and 15.2% respectively) but the two countries combine instruction time, teaching time, class size and teachers' salaries (as a proportion of GDP per capita) in very different ways. In Korea, of the four factors, relatively large class size is the only factor acting to reduce salary cost per student, relative to the OECD average. Here, despite the size of this effect, it is more than counterbalanced by relatively high teacher salaries (as a proportion of GDP per capita), which together with above-average instruction time and below-average teaching time, result in an above average salary cost per student (as a percentage of GDP per capita). In contrast, higher than average salary cost per student in Greece is almost entirely attributable to large instruction time for students combined with low teaching time for teachers. These two combined effects outweigh the counter influences of below average teachers' salaries (as a percentage of GDP per capita) and above average class sizes (Table B7.3).

Box B7.2. Main driver of the difference with OECD average of the salary cost per student as a percentage of GDP per capita, by level of education (2006)

	Primary education	Lower secondary education	Upper secondary education
Salary as % of GDP/capita	**5 countries** (Germany, Iceland, Korea, Poland, the Slovak Republic)	**8 countries** (Germany, Hungary, Iceland, Korea, Norway, Poland, the Slovak Republic, Spain)	**15 countries** (Austria, Belgium [Fl.], Belgium [Fr.], the Czech Republic, France, Germany, Iceland, Italy, Korea, the Netherlands, Norway, Poland, the Slovak Republic, Switzerland, Turkey)
Instruction time	**7 countries** (Australia, Belgium [Fr.], the Czech Republic, Finland, Italy, the Netherlands, New Zealand)	**1 country** (Ireland)	**1 country** (Greece)
Teaching time	**1 country** (the United States)	**9 countries** (Australia, Austria, the Czech Republic, Denmark, Greece, Italy, New Zealand, the United Kingdom, the United States)	**6 countries** (Australia, Denmark, Ireland, Japan, New Zealand, the United States)
Estimated class size	**16 countries** (Austria, Belgium [Fl.], Denmark, France, Greece, Hungary, Ireland, Japan, Luxembourg, Mexico, Norway, Portugal, Spain, Switzerland, Turkey, the United Kingdom)	**10 countries** (Belgium [Fl.], Belgium [Fr.], Finland, France, Japan, Luxembourg, Mexico, the Netherlands, Portugal, Switzerland)	**6 countries** (Finland, Hungary, Luxembourg, Portugal, Spain, the United Kingdom)

Source: OECD. Table B7.1, Table B7.2 and Table B7.3. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
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Alongside such contrasts, there are also striking similarities in the policy choices made by countries. In Australia, New Zealand and the United Kingdom, the salary cost per student as a percentage of GDP per capita in each of these countries, results from the balancing of two opposite effects: above-average teaching time, acting to reduce salary cost per student relative to the OECD average, and relatively low class sizes, increasing salary cost per student relative to the OECD average. However, the salary cost per student (as a percentage of GDP per capita) resulting from this combination is above the OECD average in New Zealand and the United Kingdom but below the average in Australia, where teaching time and class sizes are closer to the OECD averages (Table B7.3 and Chart B7.1).

In countries with the lowest salary cost per student (as a percentage of GDP per capita) at the upper secondary level, low salary level (as a proportion of GDP per capita) is usually the main driver. This is the case in Iceland, Norway, Poland and the Slovak Republic. In Hungary and the United States, lower than average teachers' salaries, as a percentage of GDP per capita, combine with either above average class size or higher than average teaching time for teachers and result in low levels of salary cost per student. In contrast, among countries with the highest levels of salary cost per student (Portugal, Spain, Switzerland), no single factor dictates this position; rather, three of the four factors act to increase costs to varying degrees, but slightly above average teaching time leads to a decrease in the salary cost as a percentage of GDP per capita (Table B7.3 and Chart B7.1). A quite similar pattern appears in Belgium as nearly all factors act to increase the salary cost per student (as a percentage of GDP per capita).

Difference in the combination of factors at lower secondary level of education

On the whole, class size and teaching time have more impact on the difference with the OECD average salary cost per student at lower secondary level whereas teachers' salaries are the main driver of the difference with the OECD average salary cost per student at upper secondary level (see Box B7.2). However, the lower secondary level of education presents some similarities with the upper secondary level of education in countries with the top and bottom salary cost per student. At the lower secondary level, the Slovak Republic and Luxembourg have, respectively, the lowest and highest salary cost per student (USD 595 and 10 065 respectively), and relative to GDP per capita, the Slovak Republic and Portugal have, respectively, the lowest and highest salary cost per student (3.7% and 19.8%) (Table B7.2). In the same way, countries with above average (and respectively below average) salary cost (as a percentage of GDP per capita) are usually also above the OECD average (respectively below the average) at upper secondary level of education.

For countries that have above the average salary cost per student (as a percentage of GDP per capita), class size is usually below the average, and this seems to be the main factor leading to an increase in the salary cost above the OECD average. This trend is more obvious than at the upper secondary level, even if there are exceptions (Japan and Korea, which have above average class sizes). For countries with below average salary cost per student (as a percentage of GDP per capita), low levels of teachers' salaries (as a percentage of GDP per capita) are usually, as for upper secondary levels of education, the main driver. France and the Netherlands, and to a larger extent, Mexico, are exceptions to this pattern, as the above average class size is the main driver of the below average salary cost per student (Table B7.2).

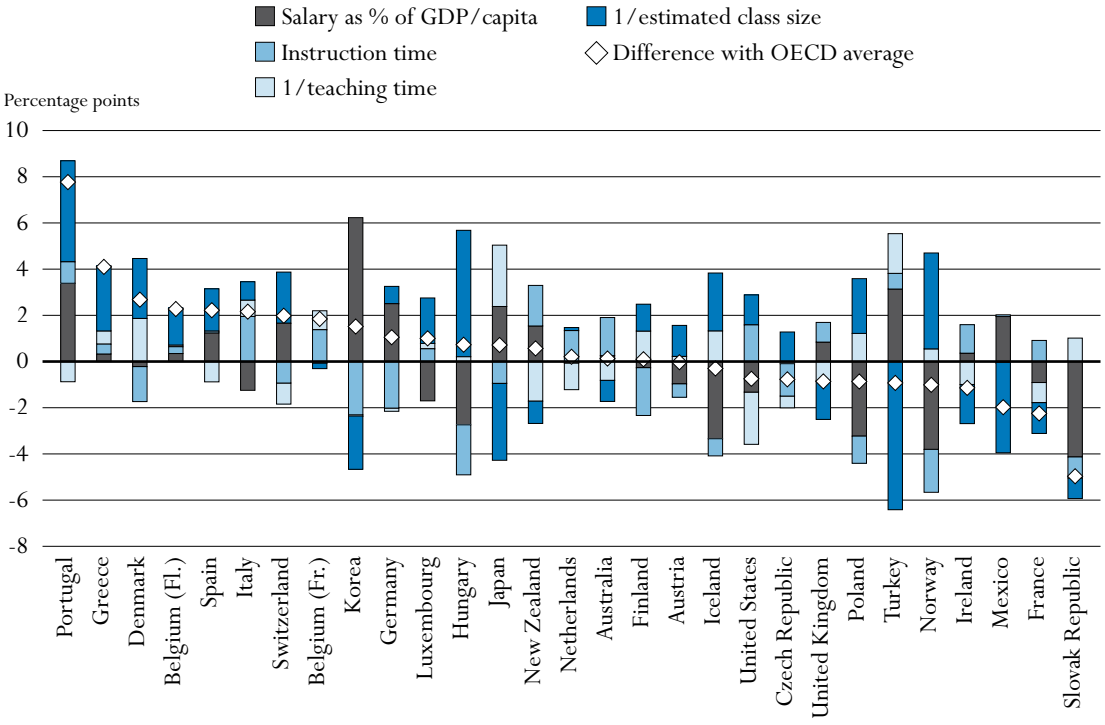
Nevertheless, there are some differences between upper and lower secondary levels of education for some countries. In Austria and Finland, the salary cost per student (as a percentage of GDP per capita) moves from below to above the OECD average between upper and lower secondary education, mainly as a result of the change of the impact of class size. In France and in the United Kingdom, changes in the impact of class size result in the reverse pattern. In Australia and Italy (both above the average at the lower secondary level) and the Netherlands and New Zealand (both below the average at lower secondary level), change from below to above the OECD average (or above to below the average, respectively) between upper and lower secondary levels results from the fact that the four factors are closer to the average at the lower secondary level than at the upper secondary level of education (Table B7.2).

Difference in the combination of factors at primary level of education

At the primary level of education (as it is the case at upper secondary), the Slovak Republic and Luxembourg are countries with, respectively, the lowest and highest salary cost per student (USD 439 and USD 6 110 respectively). Relative to GDP per capita, the Slovak Republic still has, at primary level, the lowest salary cost per student (2.8%), and Portugal the highest (15.5%), as this is also the case at the upper secondary level of education (Table B7.1).

However, similarities between countries are less obvious at the primary level of education when compared to the upper secondary level. At this level, class size is the main driver of the difference with the OECD average salary cost per student as a percentage of GDP per capita in 16 out of the 29 OECD countries with available data. In the three countries with the highest salary cost per student as a percentage of GDP per capita, differences in the level of salary cost between Denmark, Greece and Portugal are large; with a nearly 8 percentage points difference from the OECD average, Portugal has nearly 4 more points of difference than Greece and 5 more points of difference than Denmark. In these countries, the main driver for the difference with the OECD average is the smaller than average class size. However, whereas in Greece the contribution of class size exceeds the smaller effects of the three other factors, in Denmark, the below average teaching time of teachers increases this effect, and in Portugal, the effect is reinforced by the above average teachers' salaries as a percentage of GDP per capita (Table B7.1 and Chart B7.2).

Chart B7.2. Contribution of various factors to salary cost per student as a percentage of GDP per capita, at primary level of education (2006)



Countries are ranked in descending order of the difference between the salary cost in percentage of GDP per capita and the OECD average.
Source: OECD. Table B7.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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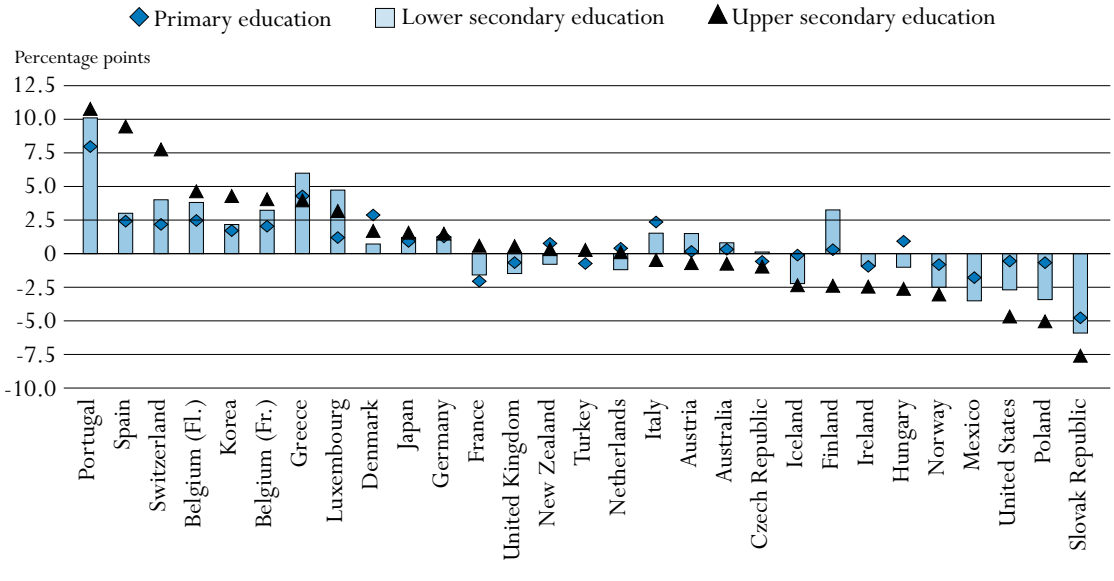
In countries with the lowest salary cost per student as a percentage of GDP per capita, no single factor can explain this level of salary cost compared to the average in all these countries. Whereas in the Slovak Republic, the main driver is the below average teachers' salaries as a percentage of GDP per capita, in the three other countries (France, Ireland and Mexico), the main driver of the low level of salary cost per student (as a percentage of GDP per capita) is above average class size, leading to a decrease in the salary cost per student (Table B7.1 and Chart B7.2).

Differences in the combination of factors between levels of education

The difference of salary cost per student to the OECD average usually decreases as the level of education decreases. This pattern does not result from a single factor; it may result from a change in the various contributions of the different factors, or even from a change in the main driver of this difference with the OECD average levels of salary cost per student. The higher the level of education analysed, the higher the impact of teachers' salaries and lower is the impact of class size on the difference with the OECD average salary cost per student as a percentage of GDP. Main examples of this pattern are Austria, Belgium (Flemish Community), France, Norway, Switzerland and Turkey. In all of these countries, the main driver of the difference with the OECD average salary cost per student is teachers' salaries at upper secondary level whereas it is class size at primary level (see Box B7.2).

Comparisons of the different levels of education show that differences between countries at the level of the salary cost per student (as a percentage of GDP per capita) are largest at the upper secondary level of education, and these differences between countries decrease with the level of education analysed (Chart B7.3).

Chart B7.3. Difference between the salary cost per student in percentage of GDP per capita and the OECD average, by level of education (2006)



Countries are ranked in descending order of the difference between the salary cost in percentage of GDP per capita and the OECD average in upper secondary education.

Source: OECD. Table B7.1, Table B7.2 and Table B7.3. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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This trend is the most obvious in countries where the salary cost per student (as a percentage of GDP per capita) is furthest from the OECD average. For example, Belgium, Korea, Portugal, Spain and Switzerland have the highest levels of salary cost per student (as a percentage of GDP per capita) at the upper secondary level of education, and the salary cost per student (as a percentage of GDP per capita) at lower secondary levels is up to 8 percentage points lower than at upper secondary levels of education. Salary cost per student (as a percentage of GDP per capita) at the primary level is between 0.6 to 4 percentage points lower than it is at the lower secondary level of education. In these countries, salary cost (as a percentage of GDP per capita) is above the OECD average in each of these levels of education.

There is a similar pattern for countries with the lowest levels of salary cost per student as a percentage of GDP per capita, but in these countries, the level of salary cost is below the OECD average, whatever the level of education. In countries with salary cost per student (as a percentage of GDP per capita) closer to the average, the salary cost per student (as a percentage of GDP per capita) may be above the OECD average at upper secondary level and decrease to lower than the OECD average at the lower secondary or primary levels. This is the case in France and New Zealand, for example. In a few cases (Italy and to some extent in Australia and Austria), the trend is in the opposite direction: from below the average at the upper secondary level to above the average at the primary level, and the difference from the OECD average increases with the level of education (except in Italy).

However, there are a few exceptions to this general trend, which show that the differences of salary cost per student to the OECD average increases as the level of education decreases. In Greece and Luxembourg, there are larger differences in salary cost, as a percentage of GDP per capita, with the OECD average at the lower secondary level than at the upper secondary level of education. The extent of the contribution of the four factors explains these effects. In Luxembourg, there is no clear pattern as to what extent the contribution changes between levels of education, but the direction of the contribution can also change. In Greece, class size contributes to an increase in the salary cost per student at the lower secondary level of education, but it decreases the salary cost per student at the upper secondary level. This is the result of an increase in the class size between these two levels. In Denmark, differences from the OECD average are larger at the primary level than at the lower and upper secondary levels of education, but no single factor explains these changes between levels of education. This results in a very different contribution of the four factors at these three levels, with class size and teaching time playing the main roles, whatever the level of education.

The fact that similar levels of expenditure between countries can mask contrasting policy choices made by countries explains a bit about why simple comparisons of student performance and expenditure levels fail to show strong correlations. Further analysis is needed to examine what influence these different policy choices actually have on the quality and equity of learning outcomes.

Definitions and methodologies

Salary cost per student is calculated based on the salary of teachers, the number of hours of instruction for students, the number of hours of teaching for teachers and a proxy class size.

In most cases, the values for these variables are derived from *Education at a Glance 2008*, and refer to the school year 2005/06 and the calendar year 2005 for indicators related to finance. However, in order to compensate for missing values for some variables, some data have been estimated on the basis of data published in previous editions of *Education at a Glance*. When it was not possible to make estimates or proxy figures were not available, the missing values have been replaced by the average for all OECD countries.

Further details on the analysis of these factors are available in Annex 3 at *www.oecd.org/edu/eag2009*.

Table B7.1.

Contribution of various factors to salary cost per student at primary level of education (2006)

Readers' guide: In Australia, at USD 2 671, the salary cost per student exceeds the OECD average by USD 409. Above-average salaries and above-average instruction time increase the difference from the OECD average by USD 436 and 522, respectively, whereas an above-average teaching time and an above-average estimated class size decrease the difference from the average by USD 260 and 290. The sum of these effects results in a positive difference from the OECD average of USD 409.

Contribution (in USD) of school factors to salary cost per student

OECD countries	Salary cost per student	Difference from OECD average	Contribution to the difference from the OECD average			
			Salary	Instruction time (for students)	1/teaching time (for teachers)	1/estimated class size
	(1)	(2)	(3)	(4)	(5)	(6)
Australia	2 671	**409**	436	522	-260	-290
Austria	2 626	**364**	53	-184	70	424
Belgium (Fl.)	3 209	**947**	338	113	0	495
Belgium (Fr.)	3 071	**809**	214	424	253	-82
Czech Republic	1 411	**-851**	-698	-348	-127	321
Denmark	3 500	**1 238**	311	-480	589	818
Finland	2 385	**123**	0	-620	395	349
France	1 625	**-637**	-256	270	-257	-394
Germany	2 678	**416**	838	-606	-42	225
Greece	3 012	**750**	-295	116	156	772
Hungary	1 439	**-823**	-1 701	-510	50	1 338
Iceland	2 642	**380**	-605	-239	425	799
Ireland	2 508	**246**	741	415	-336	-574
Italy	2 744	**482**	-507	559	203	227
Japan	2 558	**296**	782	-282	794	-998
Korea	1 973	**-289**	839	-557	-13	-558
Luxembourg	6 110	**3 848**	2 524	267	114	944
Mexico	650	**-1 612**	-871	13	-6	-749
Netherlands	2 755	**493**	413	429	-391	42
New Zealand	2 064	**-198**	48	475	-462	-260
Norway	3 200	**938**	-69	-690	201	1 496
Poland	932	**-1 330**	-1 895	-266	280	550
Portugal	3 095	**833**	-231	220	-207	1 050
Slovak Republic	439	**-1 823**	-1 627	-231	261	-227
Spain	2 713	**451**	180	1	-249	519
Switzerland	3 447	**1 185**	1 067	-306	-300	724
Turkey	530	**-1 732**	-1 133	118	305	-1 023
United Kingdom	2 169	**-93**	413	260	-255	-511
United States	2 909	**647**	441	553	-801	454

Source: OECD. Data from *Education at a Glance 2008 (www.oecd.org/edu/eag2008)*. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

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Table B7.1. *(continued)*

Contribution of various factors to salary cost per student at primary level of education (2006)

Readers' guide: In Australia, at 7.9% of the GDP per capita, the salary cost per student exceeds the OECD average by 0.2 percentage point. Above-average salaries and above-average instruction time increase the difference from the OECD average by 0.3 and 1.6 percentage points, respectively, whereas an above-average teaching time and above-average class size decrease the difference from the average by 0.8 and 0.9 percentage point. The sum of these effects results in a positive difference from the OECD average of 0.2 percentage point.

Contribution (in percentage points) of school factors to salary cost per student as a percentage of GDP per capita

OECD countries	Salary cost per student as % of GDP/capita	Difference from OECD average	Contribution to the difference from the OECD average			
			Salary as % of GDP/capita	Instruction time (for students)	1/teaching time (for teachers)	1/estimated class size
	(1)	(2)	(3)	(4)	(5)	(6)
Australia	7.9	**0.2**	0.3	1.6	-0.8	-0.9
Austria	7.7	**0.0**	-1.0	-0.6	0.2	1.3
Belgium (Fl.)	10.0	**2.3**	0.3	0.4	0.0	1.6
Belgium (Fr.)	9.6	**1.9**	0.0	1.4	0.8	-0.3
Czech Republic	7.0	**-0.7**	-0.1	-1.4	-0.5	1.3
Denmark	10.4	**2.7**	-0.2	-1.5	1.9	2.6
Finland	7.8	**0.1**	-0.3	-2.1	1.3	1.2
France	5.5	**-2.2**	-0.9	0.9	-0.9	-1.3
Germany	8.8	**1.1**	2.5	-2.0	-0.1	0.8
Greece	11.8	**4.1**	0.3	0.4	0.6	2.8
Hungary	8.5	**0.8**	-2.7	-2.2	0.2	5.5
Iceland	7.4	**-0.3**	-3.3	-0.7	1.3	2.5
Ireland	6.6	**-1.1**	0.4	1.2	-1.0	-1.7
Italy	9.9	**2.2**	-1.2	2.0	0.7	0.8
Japan	8.4	**0.8**	2.4	-0.9	2.7	-3.3
Korea	9.2	**1.6**	6.2	-2.3	-0.1	-2.3
Luxembourg	8.7	**1.0**	-1.7	0.6	0.2	2.0
Mexico	5.8	**-1.9**	2.0	0.1	0.0	-3.9
Netherlands	7.9	**0.3**	0.0	1.3	-1.2	0.1
New Zealand	8.3	**0.6**	1.5	1.8	-1.7	-1.0
Norway	6.7	**-1.0**	-3.8	-1.9	0.5	4.2
Poland	6.9	**-0.8**	-3.2	-1.2	1.2	2.4
Portugal	15.5	**7.8**	3.4	0.9	-0.9	4.4
Slovak Republic	2.8	**-4.9**	-4.1	-0.9	1.0	-0.9
Spain	10.0	**2.3**	1.3	0.0	-0.9	1.8
Switzerland	9.7	**2.0**	1.7	-0.9	-0.9	2.2
Turkey	6.8	**-0.9**	3.1	0.7	1.7	-6.4
United Kingdom	6.9	**-0.8**	0.8	0.9	-0.8	-1.7
United States	7.0	**-0.7**	-1.3	1.6	-2.3	1.3

Source: OECD. Data from *Education at a Glance 2008 (www.oecd.org/edu/eag2008)*. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

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Table B7.2.

Contribution of various factors to salary cost per student at lower secondary level of education (2006)

Contribution (in USD) of school factors to salary cost per student

OECD countries	Salary cost per student	Difference from OECD average	Contribution to the difference from the OECD average			
			Salary	Instruction time (for students)	1/teaching time (for teachers)	1/estimated class size
	(1)	(2)	(3)	(4)	(5)	(6)
Australia	3 556	**637**	375	309	-457	410
Austria	3 803	**884**	75	68	530	211
Belgium (Fl.)	4 318	**1 400**	183	39	142	1 037
Belgium (Fr.)	4 132	**1 214**	24	290	247	653
Czech Republic	1 983	**-936**	-1 117	-125	260	47
Denmark	3 487	**569**	110	-100	296	262
Finland	3 933	**1 014**	-25	-429	643	825
France	2 392	**-526**	-347	315	310	-803
Germany	3 324	**405**	903	-223	-201	-74
Greece	3 984	**1 065**	-645	52	831	828
Hungary	1 470	**-1 448**	-2 049	35	573	-7
Iceland	2 642	**-276**	-888	-208	161	658
Ireland	3 332	**414**	728	-107	-103	-104
Italy	3 102	**183**	-575	449	508	-199
Japan	3 289	**371**	769	-249	1 087	-1 236
Korea	2 523	**-395**	886	-227	747	-1 801
Luxembourg	10 065	**7 146**	4 906	-1 158	627	2 771
Mexico	694	**-2 224**	-808	374	-622	-1 168
Netherlands	2 938	**19**	549	377	-158	-749
New Zealand	2 205	**-714**	-133	123	-785	81
Norway	3 411	**492**	-316	-407	268	948
Poland	846	**-2 072**	-2 161	-182	94	177
Portugal	3 944	**1 026**	-560	-99	-219	1 904
Slovak Republic	595	**-2 324**	-2 262	-106	142	-98
Spain	3 452	**533**	360	58	-8	124
Switzerland	4 850	**1 931**	1 681	-113	-744	1 107
Turkey	a	**a**	a	a	a	a
United Kingdom	2 582	**-337**	306	-16	-628	1
United States	2 901	**-18**	309	127	-1 242	788

Source: OECD. Data from *Education at a Glance 2008 (www.oecd.org/edu/eag2008)*. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

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Table B7.2. *(continued)*

Contribution of various factors to salary cost per student at lower secondary level of education (2006)

Contribution (in percentage points) of school factors to salary cost per student as a percentage of GDP per capita

OECD countries	Salary cost per student as % of GDP/capita	Difference from OECD average	Contribution to the difference from the OECD average			
			Salary as % of GDP/capita	Instruction time (for students)	1/teaching time (for teachers)	1/estimated class size
	(1)	(2)	(3)	(4)	(5)	(6)
Australia	10.5	**0.8**	0.0	1.0	-1.4	1.3
Austria	11.1	**1.5**	-1.0	0.2	1.7	0.7
Belgium (Fl.)	13.5	**3.8**	-0.1	0.1	0.5	3.3
Belgium (Fr.)	12.9	**3.2**	-0.6	0.9	0.8	2.1
Czech Republic	9.8	**0.1**	-0.6	-0.5	1.0	0.2
Denmark	10.4	**0.7**	-0.7	-0.3	0.9	0.8
Finland	12.9	**3.3**	-0.2	-1.4	2.1	2.7
France	8.1	**-1.6**	-1.0	1.1	1.0	-2.7
Germany	10.9	**1.2**	2.9	-0.7	-0.7	-0.2
Greece	15.6	**6.0**	-0.2	0.2	3.0	3.0
Hungary	8.6	**-1.0**	-3.4	0.1	2.3	0.0
Iceland	7.4	**-2.2**	-4.1	-0.6	0.5	2.0
Ireland	8.8	**-0.9**	0.0	-0.3	-0.3	-0.3
Italy	11.2	**1.5**	-1.1	1.5	1.8	-0.7
Japan	10.9	**1.2**	2.5	-0.8	3.6	-4.1
Korea	11.8	**2.2**	7.5	-0.9	3.0	-7.4
Luxembourg	14.4	**4.7**	0.2	-2.2	1.2	5.5
Mexico	6.1	**-3.5**	4.1	1.8	-3.2	-6.2
Netherlands	8.5	**-1.2**	0.4	1.2	-0.5	-2.3
New Zealand	8.9	**-0.8**	1.3	0.4	-2.9	0.3
Norway	7.2	**-2.5**	-4.7	-1.1	0.7	2.6
Poland	6.2	**-3.4**	-3.8	-0.8	0.4	0.7
Portugal	19.8	**10.1**	3.7	-0.4	-0.9	7.8
Slovak Republic	3.7	**-5.9**	-5.7	-0.4	0.5	-0.4
Spain	12.7	**3.0**	2.4	0.2	0.0	0.4
Switzerland	13.7	**4.0**	3.2	-0.3	-2.2	3.3
Turkey	a	**a**	a	a	a	a
United Kingdom	8.2	**-1.5**	0.6	-0.1	-2.0	0.0
United States	7.0	**-2.7**	-1.8	0.4	-3.5	2.3

Source: OECD. Data from *Education at a Glance 2008 (www.oecd.org/edu/eag2008)*. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

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Table B7.3.

Contribution of various factors to salary cost per student at upper secondary level of education (2006)

Contribution (in USD) of school factors to salary cost per student

OECD countries	Salary cost per student	Difference from OECD average	Contribution to the difference from the OECD average			
			Salary	Instruction time (for students)	1/teaching time (for teachers)	1/estimated class size
	(1)	(2)	(3)	(4)	(5)	(6)
Australia	3 556	**124**	180	184	-798	558
Austria	3 583	**151**	-63	273	356	-415
Belgium (Fl.)	5 083	**1 651**	968	-100	88	695
Belgium (Fr.)	4 895	**1 462**	792	201	320	149
Czech Republic	2 078	**-1 354**	-1 379	-33	176	-118
Denmark	4 338	**906**	760	-311	2 337	-1 879
Finland	2 687	**-745**	97	-191	541	-1 192
France	3 498	**65**	-654	549	194	-24
Germany	3 872	**440**	1 092	-282	-337	-34
Greece	3 865	**433**	-930	1 161	667	-465
Hungary	1 462	**-1 970**	-1 938	323	399	-755
Iceland	3 151	**-281**	-617	-297	500	133
Ireland	3 332	**-100**	570	-294	-409	34
Italy	2 978	**-454**	-729	368	258	-351
Japan	3 867	**435**	663	-422	1 561	-1 366
Korea	3 306	**-126**	849	169	576	-1 719
Luxembourg	10 065	**6 633**	4 918	-1 762	92	3 385
Mexico	m	m	m	m	m	m
Netherlands	3 929	**497**	1 537	350	-530	-860
New Zealand	2 872	**-560**	-374	44	-1 204	974
Norway	3 892	**459**	-329	-471	810	450
Poland	838	**-2 594**	-2 466	-199	-81	153
Portugal	4 388	**956**	-900	36	-219	2 039
Slovak Republic	574	**-2 858**	-2 536	-162	74	-234
Spain	5 636	**2 204**	319	33	-279	2 130
Switzerland	6 731	**3 299**	2 616	273	-172	583
Turkey	894	**-2 538**	-1 985	-371	292	-474
United Kingdom	3 716	**284**	166	-82	-1 152	1 352
United States	2 723	**-709**	119	27	-1 574	719

Source: OECD. Data from *Education at a Glance 2008 (www.oecd.org/edu/eag2008)*. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

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Table B7.3. *(continued)*

Contribution of various factors to salary cost per student at upper secondary level of education (2006)

Contribution (in percentage points) of school factors to salary cost per student as a percentage of GDP per capita

OECD countries	Salary cost per student as % of GDP/capita	Difference from OECD average	Contribution to the difference from the OECD average			
			Salary as % of GDP/capita	Instruction time (for students)	1/teaching time (for teachers)	1/estimated class size
	(1)	(2)	(3)	(4)	(5)	(6)
Australia	10.5	**-0.9**	-0.8	0.6	-2.5	1.7
Austria	10.5	**-0.9**	-1.6	0.9	1.1	-1.3
Belgium (Fl.)	15.8	**4.4**	2.3	-0.3	0.3	2.2
Belgium (Fr.)	15.3	**3.9**	1.7	0.6	1.0	0.5
Czech Republic	10.2	**-1.2**	-1.3	-0.1	0.7	-0.5
Denmark	12.9	**1.5**	1.0	-1.0	7.4	-5.9
Finland	8.8	**-2.6**	0.2	-0.6	1.8	-3.9
France	11.8	**0.4**	-2.0	1.8	0.6	-0.1
Germany	12.7	**1.3**	3.4	-0.9	-1.1	-0.1
Greece	15.2	**3.8**	-1.1	4.2	2.4	-1.7
Hungary	8.6	**-2.8**	-2.6	1.3	1.6	-3.1
Iceland	8.9	**-2.5**	-3.6	-0.9	1.5	0.4
Ireland	8.8	**-2.6**	-0.7	-0.9	-1.2	0.1
Italy	10.7	**-0.7**	-1.6	1.3	0.9	-1.2
Japan	12.8	**1.4**	2.1	-1.4	5.2	-4.5
Korea	15.5	**4.1**	8.1	0.7	2.3	-7.1
Luxembourg	14.4	**3.0**	-0.7	-3.4	0.2	7.0
Mexico	m	m	m	m	m	m
Netherlands	11.3	**-0.1**	3.1	1.1	-1.6	-2.6
New Zealand	11.5	**0.1**	0.9	0.2	-4.4	3.5
Norway	8.2	**-3.2**	-5.4	-1.3	2.2	1.2
Poland	6.2	**-5.2**	-4.7	-0.8	-0.3	0.6
Portugal	22.0	**10.6**	3.0	0.1	-0.9	8.3
Slovak Republic	3.6	**-7.8**	-6.6	-0.6	0.3	-0.9
Spain	20.7	**9.3**	2.7	0.1	-1.0	7.5
Switzerland	19.0	**7.6**	5.5	0.8	-0.5	1.7
Turkey	11.5	**0.1**	3.3	-2.1	1.6	-2.7
United Kingdom	11.8	**0.4**	0.0	-0.3	-3.7	4.4
United States	6.5	**-4.9**	-2.6	0.1	-4.5	2.1

Source: OECD. Data from *Education at a Glance 2008 (www.oecd.org/edu/eag2008)*. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

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Chapter

C

Access to Education, Participation and Progression

INDICATOR C1

WHO PARTICIPATES IN EDUCATION?

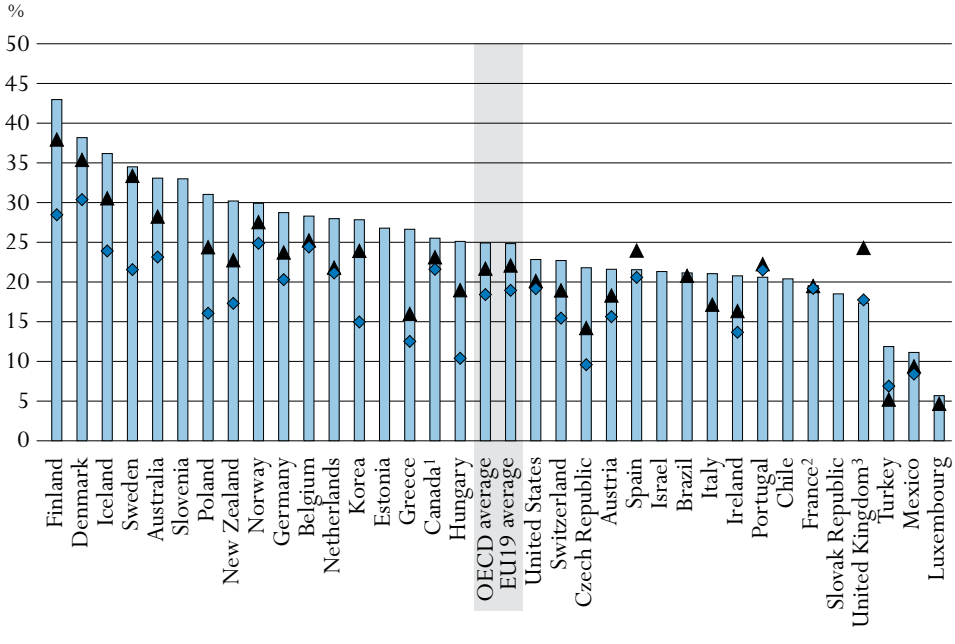
This indicator examines access to education and its evolution using information on enrolment rates and trends from 1995 to 2007. It also shows patterns of participation at the secondary and tertiary levels of education, and the comparative roles played by public and private providers of education across OECD and partner countries.

Key results

Chart C1.1. Enrolment rates of 20-29 year-olds (1995, 2000, 2007)

Full-time and part-time students in public and private institutions

In Australia, Denmark, Finland, Iceland, New Zealand, Poland and Sweden, and in the partner country Slovenia, more than 30% of the population aged 20 to 29 is enrolled in education. From 1995 to 2007, enrolment rates of 20-29 year-olds increased by 8 percentage points.



1. Reference year 2006 instead of 2007.
2. Excludes overseas departments for 1995 and 2000.
3. Break in time series following methodological change from 2006.

Countries are ranked in descending order of enrolment rates of 20-29 year-olds in 2007.

Source: OECD. Table C1.2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Other highlights of this indicator

- In most OECD countries today, virtually everyone has access to at least 12 years of formal education. In Belgium, France, Germany, Hungary, Iceland, Ireland, Japan, the Netherlands, Norway, Spain and Sweden, at least 90% of students are enrolled in education for 14 years or more. In contrast, enrolment rates in Greece and Mexico exceed 90% for ten years, and for only six years in Turkey. For partner countries Brazil and the Russian Federation, the corresponding number of years is ten and nine years respectively.

- In more than one-half of OECD countries, more than 70% of 3-4 year-olds are enrolled in either pre-primary or primary programmes. Children age 4 and under are more likely to be enrolled in a programme in one of the 19 European Union countries that are members of the OECD than in one of the other OECD countries. The average enrolment rate for 3-4 year-olds is 79% for the EU19 while only 71% for the OECD.

- Enrolment rates for 15-19 year-olds increased on average from 74% to 81% from 1995 to 2007. In Belgium, the Czech Republic and Poland, and the partner country Slovenia, they reached more than 90% in 2007 (in Belgium they had already reached this level in 1995). The pattern is similar for 20-29 year-olds, the age span during which most students are enrolled in tertiary education; between 1995 and 2007, their enrolment rates increased in all OECD countries except Portugal.

Policy context

A well-educated population is essential to a country's economic and social development. Societies therefore have an intrinsic interest in ensuring that children and adults have access to a wide variety of educational opportunities. Early childhood programmes prepare children for primary education; they provide opportunities to enhance and complement their educational experiences at home and can help combat linguistic and social disadvantages. Primary and secondary education lay the foundation for the development of a broad range of competencies and prepare young people to become lifelong learners and productive members of society. Tertiary education, either directly after initial schooling or later in life, provides a range of options for acquiring advanced knowledge and skills.

Various factors, including increased risks of unemployment and other forms of exclusion for young adults with insufficient education, have strengthened the incentive to remain in school beyond the end of compulsory education and to graduate from upper secondary education. In most OECD countries, graduation from upper secondary education is becoming the norm, and most upper secondary programmes prepare students for tertiary studies (see Indicator A2).

High tertiary participation rates help to ensure the development and maintenance of a highly educated population and labour force. Moreover, tertiary education programmes are generally associated with better access to employment (see Indicator A6) and higher earnings (see Indicator A7). Rates of entry into tertiary education are a partial indication of the degree to which a population is acquiring the high-level skills and knowledge valued by the labour market in today's knowledge society (see Indicator A2).

As students have become more aware of the economic and social benefits of tertiary education, graduation rates for tertiary-type A programmes have risen (see Indicator A3). Tertiary-type A programmes dominate tertiary enrolments and absorb a large proportion of the available resources, as they tend to be longer than other tertiary programmes (see Indicator B1).

The continuing rise in participation and the widening diversity of backgrounds and interests among those aspiring to tertiary studies mean that tertiary institutions need to expand admissions and adapt their programmes to the needs of new generations of students. In addition, the internationalisation of tertiary education means that some educational institutions may also have to adapt their curriculum and teaching methods to a culturally and linguistically diverse student body (see Indicator C2).

Evidence and explanations

In most OECD countries today, virtually everyone has access to at least 12 years of formal education. In Belgium, France, Germany, Hungary, Iceland, Ireland, Japan, the Netherlands, Norway, Spain and Sweden, at least 90% of students are enrolled in education for 14 years or more. In contrast, enrolment rates exceed 90% in Greece and Mexico for ten years, and for only six years in Turkey. For partner countries Brazil and the Russian Federation, the corresponding number of years is ten and nine years respectively (Table C1.1). However, patterns of participation in education throughout people's lives vary widely among countries.

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Participation in early childhood education

Children age 4 and under are more likely to be enrolled in a programme in one of the 19 European Union countries that are members of the OECD than in one of the other OECD countries. The average enrolment rate for 3-4 year-olds is 79% for the EU19 while only 71% for the OECD.

In the majority of OECD and partner countries, full enrolment (defined here as enrolment rates exceeding 90%) begins between the ages of 5 and 6. However, in Austria, Belgium, the Czech Republic, Denmark, France, Germany, Hungary, Iceland, Italy, Japan, Luxembourg, New Zealand, Norway, Portugal, the Slovak Republic, Spain, Sweden and the United Kingdom, and in the partner countries Estonia, Israel and Slovenia, at least 70% of 3-4 year-olds are enrolled in either preprimary or primary programmes. Enrolment rates for early childhood education range from less than 30% in Greece, Korea, Switzerland and Turkey to over 90% in Belgium, Denmark, France, Germany, Iceland, Italy, New Zealand, Norway, Spain, and Sweden (Table C1.1).

Early childhood education and care is very valuable in building a strong foundation for lifelong learning and in ensuring equitable access to later learning opportunities. Many countries have recognised this by making pre-primary education almost universal for children by the time they are 3 years of age. However, institutionally based pre-primary programmes covered by this indicator are not the only available form of effective early childhood education and care. Inferences about access to and quality of pre-primary education and care should therefore be made with caution.

Participation in upper secondary education

A range of factors – including better employment outcomes for the more educated – has strengthened the incentive for young people to remain in school beyond the end of compulsory education and to graduate from upper secondary education. The continued rise in participation in upper secondary education means that countries have to cater to a more diverse student population at that level.

Countries have taken various approaches to meeting these demands. Some have comprehensive secondary systems with non-selective general/academic programmes so that all students have similar opportunities for learning; others provide more distinctive education programmes (academic, pre-vocational and/or vocational programmes). Programmes at the secondary level can be subdivided into three categories, based on the degree to which they are oriented towards a specific class of occupations or trades and lead to a qualification that is relevant to the labour market:

- General education programmes are not designed explicitly to prepare participants for specific occupations or trades, or for entry into further vocational or technical education programmes (less than 25% of programme content is vocational or technical).
- Pre-vocational or pre-technical education programmes are mainly designed to introduce participants to the world of work and to prepare them for entry into further vocational or technical education programmes. Successful completion of such programmes does not lead to a vocational or technical qualification that is directly relevant to the labour market (at least 25% of programme content is vocational or technical).

- Vocational or technical education programmes prepare participants for direct entry into specific occupations without further training. Successful completion of such programmes leads to a vocational or technical qualification that is relevant to the labour market.

Vocational and pre-vocational programmes are further divided into two categories (school-based and combined school- and work-based programmes) on the basis of the amount of training provided in school as opposed to the work place:

- In school-based programmes, instruction takes place (either partially or exclusively) in educational institutions. They include special training centres run by public or private authorities or enterprise-based special training centres if these qualify as educational institutions. These programmes can have an on-the-job training component involving some practical work experience at the workplace. Programmes are classified as school-based if at least 75% of the programme curriculum is presented in the school environment; this may include distance education.

- In combined school- and work-based programmes, less than 75% of the curriculum is presented in the school environment or through distance education. These programmes can be organised in conjunction with educational authorities or educational institutions and include apprenticeship programmes that involve concurrent school-based and work-based training, and programmes that involve alternating periods of attendance at educational institutions and participation in work-based training (sometimes referred to as "sandwich" programmes).

The degree to which a programme has a vocational or general orientation does not necessarily determine whether participants have access to tertiary education. In several OECD countries, vocationally oriented programmes are designed to prepare students for further study at the tertiary level, and in some countries general programmes do not always provide direct access to further education.

For 13 OECD countries and the partner country Slovenia, for which data are available, the majority of upper secondary students pursue pre-vocational or vocational programmes. In most OECD countries with dual-system apprenticeship programmes (Austria, Germany, Luxembourg, the Netherlands and Switzerland) and in Australia, Belgium, the Czech Republic, Finland, Italy, Norway, the Slovak Republic and Sweden and the partner country Slovenia, 55% or more of upper secondary students are enrolled in pre-vocational or vocational programmes. However, in Canada, Greece, Hungary, Iceland, Ireland, Japan, Korea, Mexico, Portugal and Turkey and the partner countries Brazil, Chile, Estonia and Israel, 60% or more of upper secondary students are enrolled in general programmes even though pre-vocational and/or vocational programmes are offered (Table C1.4).

In many OECD countries, upper secondary vocational education is school-based. However, in Austria, the Czech Republic, Iceland and the Slovak Republic, about 40% or more of students in vocational programmes participate in programmes that combine school- and work-based elements. In Denmark, Germany, Hungary, Ireland and Switzerland and the partner country Estonia, around 75% or more of students in vocational programmes are enrolled in programmes that have both school- and work-based elements.

Upper secondary students in many education systems can enrol in vocational programmes, but some OECD countries delay vocational training until after graduation from upper secondary

education. While vocational programmes are offered as advanced upper secondary programmes in some OECD countries (*e.g.* Austria, Hungary and Spain), similar programmes are offered as post-secondary education in others (*e.g.* Canada and the United States).

Apprenticeship programmes

Table C1.4 includes enrolments in apprenticeship programmes that are a recognised part of the education system in countries. This section provides information on the typical characteristics of these programmes and other work-based learning programmes.

In most OECD countries (Australia, Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Hungary, Iceland, Ireland, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, the Slovak Republic, Switzerland, Turkey and the United Kingdom) and partner countries (Israel, the Russian Federation and Slovenia), some form of an apprenticeship system exists. In some countries (*e.g.* Austria, Germany and Hungary), apprenticeship contracts are established between a student (not the vocational training school) and a company. The majority of countries have combined school- and work-based apprenticeship programmes. That said, apprenticeship systems do not exist in Japan, Korea, Spain and Sweden. However, Sweden is currently piloting apprenticeship training as a complement to school-based education. In the United States, there are apprenticeship programmes, but they generally are not part of the formal education system.

The minimum entry requirement for apprenticeship programmes varies but is typically the completion of lower secondary education (the Czech Republic, Denmark, Finland, France, Germany, Ireland, Luxembourg, Mexico, the Netherlands, Norway, Poland and the Slovak Republic, and the partner countries Israel and Slovenia). In Austria, students must have completed a minimum of nine years of compulsory schooling. In Australia, Belgium, the Netherlands, the United Kingdom and the United States, entry is governed (in full or in part) by age criteria, while in New Zealand, participants must be employed. In Turkey, the minimum requirement is completion of primary education, but entrants must be at least 14 years old and have a contract with a workplace. In the partner country the Russian Federation, there is no legal framework for entry into apprenticeship programmes.

In some countries the duration of apprenticeship programmes is standardised; it ranges from one to four years in the Czech Republic, Denmark, France, Germany, Ireland, New Zealand, Norway, Poland and the United Kingdom, and the partner countries Israel and Slovenia. In other countries (*e.g.* Austria and Belgium), it varies according to subject, specific qualification sought, previous knowledge and/or experience.

In most countries, the successful completion of an apprenticeship programme usually results in the awarding of an upper secondary or post-secondary qualification. In some countries, higher qualifications are possible (such as an advanced diploma in Australia).

Participation towards the end of compulsory education and beyond

Several factors influence the decision to stay enrolled in school beyond the end of compulsory education, particularly the limited prospects of young adults with insufficient education; in many countries they are at greater risk of unemployment and other forms of exclusion than their more educated peers. In many OECD countries, the transition from education to employment

has become longer and more complex, providing the opportunity or the necessity to combine learning and work to develop marketable skills (see Indicator C3).

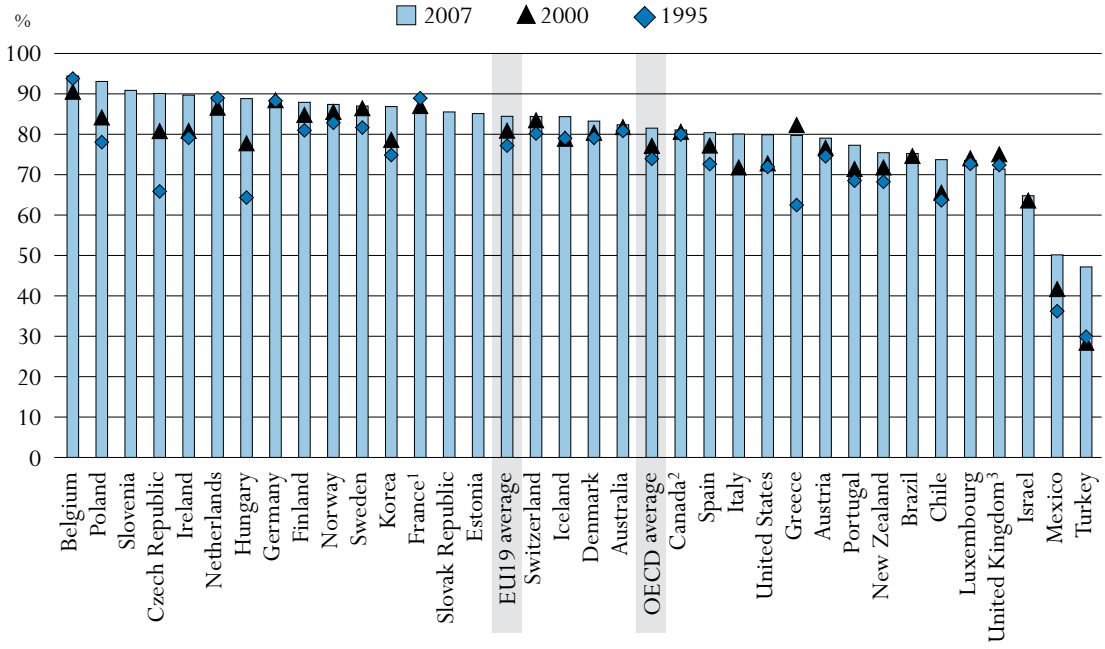
The age at which compulsory education ends ranges from 14 in Korea, Portugal and Turkey and the partner countries Brazil and Slovenia to 18 in Belgium, Germany, Hungary and the Netherlands and the partner country Chile (Table C1.1). However, the statutory age at which compulsory education ends does not always correspond to the age at which enrolment is universal.

In most OECD and partner countries, participation rates tend to be high to the end of compulsory education. However, in Belgium, Germany, Hungary, Mexico, the Netherlands, New Zealand, Turkey, and the United States and the partner country Chile, the rates drop below 90% before the end of compulsory education (Table C1.1). In Belgium, Germany, Hungary, the Netherlands and the United States and the partner country Chile, this may be due, in part, to the fact that compulsory education ends relatively late at age 18 (age 17, on average, in the United States).

In most OECD and partner countries, enrolment rates decline gradually during the last years of upper secondary education. More than 20% of the population aged 15 to 19 is not enrolled in education in Austria, Greece, Luxembourg, Mexico, New Zealand, Portugal, Turkey, the United Kingdom and the United States, and in the partner countries Brazil, Chile, Israel and the Russian Federation (Table C1.1 and Chart C1.2).

Chart C1.2. Enrolment rates of 15-19 year-olds (1995, 2000 and 2007)

Full-time and part-time students in public and private institutions



1. Excludes overseas departments for 1995 and 2000.
2. Reference year 2006 instead of 2007.
3. Break in time series following methodological change from 2006.

Countries are ranked in descending order of enrolment rates of 15-19 year-olds in 2007.

Source: OECD. Table C1.2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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There has been an average increase of 8 percentage points in the proportion of 15-19 year-olds enrolled in education in OECD countries between 1995 and 2007. Enrolment rates for this age group increased on average from 74% to 81% from 1995 to 2007, and amounted to more than 90% in 2007 in Belgium, the Czech Republic, Poland and the partner country Slovenia (Belgium had already reached 90% or more in 1995) (Table C1.2). However, even though enrolment rates for 15-19 year-olds have improved by more than 20 percentage points during the past 12 years in the Czech Republic and Hungary, they have remained virtually unchanged in Australia, Belgium, Canada, Germany, Luxembourg, the Netherlands and the United Kingdom. Of these, all except Luxembourg have a high proportion of their population of 15-19 year-olds enrolled in education (Table C1.2 and Chart C1.2).

End of compulsory education and decline in enrolment rates

An analysis of the participation rates by level of education and single year of age shows that there is no close relationship between the end of compulsory education and the decline in enrolment rates. In most OECD and partner countries, the sharpest decline in enrolment rates occurs not at the end of compulsory education, but at the end of upper secondary education. After the age of 16, however, enrolment rates begin to decline in all OECD and partner countries. Enrolment rates in secondary education fall from 91% on average at age 16 to 83% at age 17, 53% at age 18 and 27% at age 19. In Belgium, the Czech Republic, Finland, Germany, Hungary, Japan, Korea, Norway, Poland, the Slovak Republic and Sweden and in the partner countries Israel and Slovenia, 90% or more of all 17-year-olds are still enrolled at this level, even though compulsory education ends at less than 17 years of age in most of these countries (Table C1.3).

Participation in tertiary education

Enrolment rates indicate the number of individuals participating in tertiary education. On average in OECD countries, 25% of 20-29 year-olds were enrolled in education in 2007. Enrolment rates were 30% or more in Australia, Denmark, Finland, Iceland, New Zealand, Poland and Sweden and in the partner country Slovenia (Table C1.1 and Chart C1.1). However, it should be noted that tertiary enrolment rates for countries with large proportions of international students relative to population size may be overestimated. For example, the tertiary enrolment rates of 20-29 year-olds in tertiary education in Australia and New Zealand fell by 27% and 22% respectively when adjustments for the impact of international students were made.

Policies to expand education have led to greater access to tertiary education in many OECD and partner countries. So far this has more than compensated for the declines in cohort sizes, which until recently had led to the predictions of stable or declining demand in several OECD countries. On average, in all OECD countries with comparable data, participation rates in tertiary education grew by 8 percentage points from 1995 to 2007. All OECD and partner countries except Portugal saw some degree of increase in participation rates of 20-29 year-olds. This growth was over 12 percentage points in the Czech Republic, Finland, Greece, Hungary, Iceland, Korea, New Zealand, Poland and Sweden, and particularly significant in the Czech Republic, Greece and Hungary, which were previously at the bottom of the scale of OECD countries but recently moved up to the middle. Although some OECD countries (Belgium, France, Iceland, Ireland, New Zealand, Portugal, Spain, Sweden and the United States) show signs of a leveling of the tertiary enrolment rates, the overall trend remains upwards (Table C1.2 and Chart C1.1).

The relative size of the public and the private sectors

In OECD and partner countries, education at the primary and secondary levels is still predominantly publicly provided. On average, 91% of primary education students in OECD countries are enrolled in public institutions; the figures decline slightly in secondary education, with 85% of lower secondary students and 83% of upper secondary students taught in public institutions. Japan and Mexico are exceptions at the upper secondary level, as independent private providers (those that receive less than 50% of their funds from government sources) take in 31% and 20%, respectively, of upper secondary students (Table C1.5).

At the tertiary level, the pattern is quite different. Private providers generally play a more significant role. In tertiary-type B programmes, the private sector accounts for more than one-third of students, and in tertiary-type A and advanced research programmes it accounts for more than one-fifth of students. In the United Kingdom, all tertiary education is provided through government-dependent private institutions. Such providers also receive more than half of tertiary-type B students in the partner country Israel (70%). Government-dependent private providers also take a significant share of tertiary-type A and advanced research programmes in the partner countries Estonia (86%) and Israel (76%). Independent private providers are more prominent at the tertiary level than at pre-tertiary levels (an average of 14% of tertiary students attend such institutions), particularly in Japan, Korea and partner countries Brazil and Chile (in tertiary-type B), where more than 70% of students are enrolled in such institutions (Table C1.6).

Definitions and methodologies

Data on enrolments are for the school year 2006-2007 and based on the UOE data collection on educational systems administered annually by the OECD.

Except where otherwise noted, figures are based on head counts; that is, they do not distinguish between full-time and part-time study because the concept of part-time study is not recognised by some countries. In some OECD countries, part-time education is only partially covered in the reported data.

Net enrolment rates, expressed as percentages in Table C1.1 and Table C1.2, are calculated by dividing the number of students of a particular age group enrolled in all levels of education by the size of the population of that age group.

In Table C1.2, data on trends in enrolment rates for the years 1995, 2000, 2001, 2002, 2003 and 2004 are based on a special survey carried out in OECD countries and four out of six partner countries in January 2007.

Data on apprenticeship programmes are based on a special survey carried out by the OECD in the autumn of 2007.

Data on the impact of international students on tertiary enrolment rates are based on a special survey carried out by the OECD in December 2008.

Further references

The following additional material relevant to this indicator is available on line at:

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- ***Table C1.7. Education expectancy (2007)***
- ***Table C1.8. Expected years in tertiary education (2007)***

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Table C1.1.

Enrolment rates, by age (2007)

Full-time and part-time students in public and private institutions

		Ending age of compulsory education	Number of years at which over 90% of the population are enrolled	Age range at which over 90% of the population are enrolled	Students aged: 4 and under as a percentage of the population aged 3 to 4	5 to 14 as a percentage of the population aged 5 to 14	15 to 19 as a percentage of the population aged 15 to19	20 to 29 as a percentage of the population aged 20 to 29	30 to 39 as a percentage of the population aged 30 to 39	40 and over as a percentage of the population aged 40 and over
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	**Australia**	15	12	5 - 16	32.2	99.3	82.3	33.1	13.5	5.8
	Austria	15	12	5 - 16	70.1	98.3	79.0	21.6	3.5	0.5
	Belgium[1]	18	15	3 - 17	126.0	99.3	94.4	28.3	8.5	3.8
	Canada[2]	16-18	m	m	m	m	81.1	25.9	5.5	1.7
	Czech Republic	15	13	5 - 17	80.0	99.8	90.1	21.8	4.4	0.4
	Denmark	16	13	3 - 16	94.0	98.0	83.3	38.2	8.1	1.5
	Finland	16	13	6 - 18	46.0	95.3	87.9	43.0	14.4	3.4
	France[1]	16	15	3 - 17	111.2	100.9	85.7	19.5	2.6	n
	Germany	18	14	4 - 17	99.0	99.2	88.1	28.7	2.5	0.1
	Greece	14.5	10	6 - 15	27.7	97.7	79.7	26.6	7.6	x(8)
	Hungary	18	14	4 - 17	82.7	99.8	88.8	25.1	5.9	0.6
	Iceland	16	14	3 - 16	96.0	98.3	84.4	36.2	12.4	3.6
	Ireland	16	14	5 - 18	23.8	102.6	89.7	20.8	5.6	0.2
	Italy[1]	15	13	3 - 15	104.4	100.3	80.0	21.0	3.5	0.1
	Japan	15	14	4 - 17	84.4	100.5	m	m	m	m
	Korea	14	12	6 - 17	27.3	95.7	86.8	27.8	2.1	0.5
	Luxembourg[3]	15	12	4 - 15	81.5	95.9	73.6	5.7	0.5	0.1
	Mexico	15	10	5 - 14	60.4	102.1	50.1	11.1	3.5	0.6
	Netherlands	18	14	4 - 17	49.6	99.5	89.3	28.0	2.7	0.7
	New Zealand	16	12	4 - 15	90.1	99.7	75.4	30.2	12.7	6.0
	Norway	16	14	4 - 17	91.8	99.2	87.4	29.9	6.8	1.7
	Poland	16	13	6 - 18	40.7	94.5	93.1	31.0	4.3	x(8)
	Portugal	14	12	5 - 16	72.0	104.2	77.3	20.6	3.7	0.6
	Slovak Republic	16	12	6 - 17	76.0	96.8	85.5	18.5	3.9	0.6
	Spain[1]	16	14	3 - 16	125.9	100.7	80.4	21.5	4.0	1.1
	Sweden	16	16	3 - 18	98.4	100.3	87.0	34.5	12.9	2.9
	Switzerland	15	12	5 - 16	27.0	100.4	84.4	22.7	3.8	0.4
	Turkey	14	6	7 - 12	6.7	84.3	47.2	11.9	1.6	0.2
	United Kingdom	16	13	4 - 16	89.9	99.3	71.4	17.3	5.7	1.7
	United States	17	11	6 - 16	49.8	98.3	79.9	22.8	5.5	1.4
	OECD average	***16***	***13***		***71.2***	***98.6***	***81.5***	***24.9***	***5.9***	***1.5***
	EU19 average	***16***	***13***		***78.9***	***99.1***	***84.4***	***24.8***	***5.6***	***1.1***
Partner countries	**Brazil**	14	10	7 - 16	44.7	91.7	75.2	21.1	8.7	2.7
	Chile	18	11	6 - 16	50.2	96.1	73.7	20.4	3.2	0.6
	Estonia	15	11	6 - 16	87.0	100.4	85.1	26.8	7.1	0.8
	Israel	15	13	5 - 17	83.7	96.1	64.8	21.3	5.6	1.0
	Russian Federation[4]	15	9	7 - 15	m	81.5	73.5	18.7	0.7	n
	Slovenia	14	12	6 - 17	76.0	96.2	90.9	33.0	5.8	0.7

Note: Ending age of compulsory education is the age at which compulsory schooling ends. For example, an ending age of 18 indicates that all students under 18 are legally obliged to participate in education. Mismatches between the coverage of the population data and the enrolment data mean that the participation rates may be underestimated for countries such as Luxembourg that are net exporters of students and may be overestimated for those that are net importers.

1. The rates "4 and under as a percentage of the population of 3-4 year-olds" are overestimated. A significant number of students are younger than 3 years old. The net rates between 3 and 5 are around 100%.
2. Reference year 2006.
3. Underestimated because a lot of resident students go to school in the neighbouring countries.
4. Reference year 2005.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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C1

Table C1.2.

Trends in enrolment rates (1995-2007)

Full-time and part-time students in public and private institutions in 1995, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007

	15-19 year-olds as a percentage of the population aged 15 to 19									20-29 year-olds as a percentage of the population aged 20 to 29								
	1995	2000	2001	2002	2003	2004	2005	2006	2007	1995	2000	2001	2002	2003	2004	2005	2006	2007
OECD countries																		
Australia	81	82	81	83	82	82	82	83	82	23	28	28	33	33	33	33	33	33
Austria	75	77	77	77	77	79	80	82	79	16	18	19	17	18	19	19	20	22
Belgium	94	91	91	92	94	95	94	95	94	24	25	26	27	29	30	29	29	28
Canada	80	81	81	80	80	79	80	81	m	22	23	24	25	25	25	26	26	m
Czech Republic	66	81	87	90	90	91	90	90	90	10	14	15	16	17	19	20	20	22
Denmark	79	80	83	82	85	85	85	83	83	30	35	36	36	36	36	38	38	38
Finland	81	85	85	85	86	87	87	88	88	28	38	39	40	40	41	43	43	43
France[1]	89	87	86	86	87	87	86	86	86	19	19	20	20	20	20	20	20	20
Germany	88	88	90	89	89	89	89	89	88	20	24	24	26	27	28	28	28	29
Greece	62	82	74	83	83	86	97	93	80	13	16	22	25	26	28	24	32	27
Hungary	64	78	79	81	83	85	87	88	89	10	19	20	21	22	24	24	25	25
Iceland	79	79	79	81	83	84	85	85	84	24	31	30	32	36	37	37	37	36
Ireland	79	81	82	83	84	87	89	88	90	14	16	18	19	19	23	21	20	21
Italy	m	72	73	76	78	79	80	81	80	m	17	17	18	20	20	20	20	21
Japan	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Korea	75	79	79	80	81	84	86	86	87	15	24	25	27	27	28	27	28	28
Luxembourg	73	74	75	75	75	75	72	73	74	m	5	6	6	6	7	6	9	6
Mexico	36	42	42	44	45	47	48	49	50	8	9	9	10	10	11	11	11	11
Netherlands	89	87	86	87	85	86	86	89	89	21	22	23	23	25	26	26	27	28
New Zealand	68	72	72	74	74	74	74	74	75	17	23	25	28	30	31	30	29	30
Norway	83	86	85	85	85	86	86	86	87	25	28	26	26	29	29	29	30	30
Poland	78	84	86	87	88	90	92	93	93	16	24	26	28	29	30	31	31	31
Portugal	68	71	73	71	72	73	73	73	77	22	22	22	22	23	23	22	21	21
Slovak Republic	m	m	74	76	80	83	85	85	86	m	m	12	13	13	15	16	17	18
Spain	73	77	78	78	78	80	81	80	80	21	24	23	23	22	22	22	22	22
Sweden	82	86	86	86	87	87	87	88	87	22	33	33	34	34	36	36	36	35
Switzerland	80	83	83	83	83	83	83	84	84	15	19	20	20	21	21	22	22	23
Turkey	30	28	30	34	35	40	41	45	47	7	5	5	6	6	10	10	11	12
United Kingdom[2]	72	75	75	77	75	79	79	70	71	18	24	24	27	26	28	29	17	17
United States	72	73	76	75	76	76	79	78	80	19	20	22	23	22	23	23	23	23
OECD average	***74***	***77***	***78***	***79***	***79***	***81***	***81***	***82***	***82***	***18***	***22***	***22***	***23***	***24***	***25***	***25***	***25***	***25***
OECD average for countries with 1995 and 2007 data	***74***								***81***	***18***								***26***
EU19 average	***77***	***81***	***81***	***82***	***83***	***84***	***85***	***85***	***84***	***19***	***22***	***22***	***23***	***24***	***25***	***25***	***25***	***25***
Partner countries																		
Brazil	m	75	71	74	80	79	80	m	75	m	21	23	22	22	23	21	m	21
Chile	64	66	m	66	68	70	74	72	74	m	m	m	m	m	m	m	m	20
Estonia	m	m	m	m	m	m	87	87	85	m	m	m	m	m	m	27	27	27
Israel	m	64	63	65	66	65	65	65	65	m	m	m	21	21	20	20	21	21
Russian Federation	m	71	71	74	m	m	74	m	m	m	m	m	13	m	m	19	m	m
Slovenia	m	m	m	m	m	m	91	91	91	m	m	m	m	m	m	32	33	33

1. Excludes overseas departments (DOM) from 1995 to 2004.
2. Break in time series following methodological change from 2006.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664625546654

Table C1.3.

Transition characteristics from age 15-20, by level of education (2007)

Net enrolment rates (based on head counts)

		Age 15	Age 16			Age 17			Age 18			Age 19			Age 20		
	Graduation age at the upper secondary level of education	Secondary education	Secondary education	Post-secondary non-tertiary	Tertiary education	Secondary education	Post-secondary non-tertiary	Tertiary education	Secondary education	Post-secondary non-tertiary	Tertiary education	Secondary education	Post-secondary non-tertiary	Tertiary education	Secondary education	Post-secondary non-tertiary	Tertiary education
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD countries																	
Australia	17	98	93	n	n	79	1	5	38	3	28	25	3	37	20	2	38
Austria	17-18	95	91	n	n	76	13	n	46	22	5	19	13	15	8	6	22
Belgium	18	102	102	n	n	100	n	1	47	6	36	23	7	47	13	4	48
Canada[1]	17-18	94	91	x(4)	1	79	x(7)	8	33	x(10)	36	11	x(13)	50	4	x(16)	47
Czech Republic	18-19	100	100	n	n	96	n	n	82	4	1	37	10	22	7	6	37
Denmark	18-19	97	91	n	n	84	n	n	80	n	n	57	n	5	34	n	15
Finland	19	99	96	n	n	95	n	n	93	n	1	33	n	20	17	n	33
France	17-20	98	95	n	n	88	n	2	49	1	28	24	1	40	10	1	41
Germany	19-20	97	95	n	n	91	n	1	82	n	3	40	20	10	20	16	19
Greece	18	92	89	a	a	75	1	9	18	6	42	10	7	50	6	4	52
Hungary	19	100	95	n	n	92	n	n	62	9	12	22	17	34	11	11	38
Iceland	19	99	93	n	n	85	n	n	74	n	n	67	n	2	36	n	16
Ireland	18-19	99	101	1	n	79	6	5	31	25	34	4	17	44	1	13	41
Italy	19	93	89	a	a	83	a	a	75	a	3	20	n	34	6	n	37
Japan	18	99	96	a	a	95	a	m	3	m	m	1	m	m	m	m	m
Korea	17	99	91	a	n	92	a	1	5	a	68	n	a	76	n	a	70
Luxembourg	18-19	92	83	n	m	79	n	m	68	n	m	43	n	m	24	1	m
Mexico	18	65	58	a	a	44	a	3	18	a	13	28	a	19	3	a	20
Netherlands	17-20	99	98	n	n	86	n	6	61	n	21	42	n	31	28	n	36
New Zealand	17-18	96	87	1	1	70	3	4	25	7	27	12	6	36	9	5	38
Norway	18-20	100	95	n	n	93	n	n	88	n	n	42	1	15	20	2	29
Poland	19-20	98	97	a	a	95	n	n	92	n	1	36	9	37	12	12	45
Portugal	17-18	96	90	a	a	80	a	a	45	n	19	25	n	27	13	n	30
Slovak Republic	19-20	99	94	n	n	90	n	n	80	n	4	36	n	25	7	1	35
Spain	17	99	93	a	n	83	a	n	41	a	28	23	a	35	13	a	38
Sweden	19	95	99	n	n	97	n	n	93	n	1	28	1	14	17	1	23
Switzerland	18-20	97	91	n	n	87	1	n	78	1	2	47	3	9	20	3	16
Turkey	16	60	60	a	n	37	a	6	23	a	19	m	a	26	m	a	26
United Kingdom	16	98	90	n	n	74	n	2	26	n	24	10	n	33	6	n	33
United States	18	98	93	m	1	81	m	4	26	m	39	4	m	52	n	m	48
OECD average		***95***	***91***	***n***	***n***	***83***	***1***	***2***	***53***	***3***	***18***	***27***	***4***	***30***	***13***	***3***	***35***
EU19 average		***97***	***94***	***n***	***n***	***87***	***1***	***2***	***62***	***4***	***15***	***28***	***5***	***29***	***13***	***4***	***35***
Partner countries																	
Brazil	18	84	87	a	n	77	a	1	55	a	8	35	a	11	23	a	14
Chile	18	93	91	a	n	86	a	n	31	a	21	10	a	32	3	a	33
Estonia	19	96	96	n	n	89	n	n	73	1	9	21	6	36	8	7	40
Israel	17	96	94	n	n	90	n	n	20	n	6	2	n	12	1	1	13
Russian Federation	17	86	73	x(2)	m	36	x(5)	m	13	x(8)	m	5	x(11)	m	1	x(14)	m
Slovenia	18-19	95	98	n	n	96	n	n	84	n	5	26	3	48	m	m	53

Note: Mismatches between the coverage of the population data and the student data mean that the paparticipation rates may be underestimated for countries such as Luxembourg that are net exporters of students and may be overestimated for those that are net importers.

1. Year of reference 2006.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664625546654

C1

Table C1.4.

Upper secondary enrolment patterns (2007)

Enrolment in upper secondary programmes in public and private institutions by programme destination and programme orientation

	Upper secondary education						
	Distribution of enrolment by programme destination			Distribution of enrolment by programme orientation			
	ISCED 3A	ISCED 3B	ISCED 3C	General	Pre-vocational	Vocational	Combined school and work-based
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD countries							
Australia	39.6	x(1)	60.4	39.6	a	60.4	m
Austria	44.8	46.1	9.1	22.7	6.6	70.7	34.3
Belgium	49.3	a	50.7	30.4	a	69.6	3.4
Canada[1]	94.5	a	5.5	94.5	x(6)	5.5	a
Czech Republic	72.8	0.4	26.8	24.7	n	75.2	34.0
Denmark	52.3	a	47.7	52.3	a	47.7	47.2
Finland	100.0	a	a	33.3	a	66.7	11.5
France	56.2	11.6	32.2	56.2	a	43.8	12.1
Germany	42.6	57.1	0.3	42.6	a	57.4	42.2
Greece	68.3	a	31.7	68.3	a	31.7	a
Hungary	77.4	a	22.6	76.4	10.4	13.2	13.2
Iceland	50.3	0.7	49.0	66.2	1.4	32.4	15.7
Ireland	70.9	a	29.1	66.5	31.3	2.2	2.2
Italy	81.7	1.4	17.0	40.2	33.2	26.5	a
Japan	75.7	0.9	23.4	75.7	0.9	23.4	a
Korea	73.2	a	26.8	73.2	a	26.8	a
Luxembourg	60.8	15.1	24.0	37.7	a	62.3	14.0
Mexico	90.6	a	9.4	90.6	a	9.4	a
Netherlands	63.0	a	37.0	32.4	a	67.6	18.5
New Zealand	m	m	m	m	m	m	m
Norway	42.5	a	57.5	42.5	a	57.5	14.9
Poland	87.8	a	12.2	55.7	a	44.3	6.4
Portugal	100.0	x(1)	x(1)	68.4	16.7	14.8	m
Slovak Republic	82.8	a	17.2	26.8	a	73.2	29.8
Spain	56.6	n	43.4	56.6	n	43.4	1.9
Sweden	94.0	n	6.0	42.9	1.0	56.2	n
Switzerland	30.0	64.7	5.3	35.2	a	64.8	59.0
Turkey[2]	100.0	a	m	63.3	a	36.7	n
United Kingdom[3]	77.7	x(1)	22.3	58.6	x(6)	41.4	m
United States	100.0	x(1)	x(1)	100.0	x(4)	x(4)	x(4)
OECD average	***70.2***	***7.9***	***25.6***	***54.3***	***3.9***	***43.8***	***14.4***
EU19 average	***70.5***	***7.7***	***23.9***	***47.0***	***5.5***	***47.8***	***15.9***
Partner countries							
Brazil	90.6	9.4	a	90.6	a	9.4	a
Chile	100.0	a	a	64.9	a	35.1	a
Estonia	99.7	a	0.3	68.7	a	31.3	31.3
Israel	96.1	a	3.9	66.1	a	33.9	3.9
Russian Federation	54.2	15.0	30.8	54.2	15.0	30.8	m
Slovenia	35.1	44.8	20.1	35.1	n	64.9	1.6

1. Year of reference 2006.
2. Excludes ISCED 3C.
3. Includes post-secondary, non-tertiary education.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664625546654

Table C1.5.

Students in primary and secondary education by type of institution or mode of study (2007)

Distribution of students, by mode of enrolment and type of institution

	Type of institution									Mode of enrolment	
	Primary			Lower secondary			Upper secondary			Primary and secondary	
	Public	Government-dependent private	Independent private	Public	Government-dependent private	Independent private	Public	Government-dependent private	Independent private	Full-time	Part-time
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD countries											
Australia	70.2	29.8	a	67.2	32.8	a	78.0	21.9	0.1	78.8	21.2
Austria	94.8	5.2	x(2)	91.8	8.2	x(5)	88.8	11.2	x(8)	m	m
Belgium	45.7	54.3	a	43.3	56.7	a	42.4	57.6	a	79.8	20.2
Canada[1]	94.2	x(1)	5.8	94.2	x(4)	5.8	94.2	x(7)	5.8	100.0	a
Czech Republic	98.7	1.3	a	97.8	2.2	a	86.3	13.7	a	100.0	n
Denmark	87.9	12.1	n	76.2	23.4	0.4	97.3	2.6	0.1	96.7	3.3
Finland	98.7	1.3	a	95.7	4.3	a	85.4	14.6	a	100.0	a
France	85.1	14.4	0.5	78.4	21.2	0.3	69.2	29.8	1.0	100.0	a
Germany	96.7	3.3	x(2)	91.9	8.1	x(5)	91.1	8.9	x(8)	99.7	0.3
Greece	92.8	a	7.2	94.9	a	5.1	95.3	a	5.2	97.9	2.4
Hungary	92.6	7.4	a	91.9	8.1	a	82.2	17.8	a	94.9	5.1
Iceland	98.4	1.6	n	99.3	0.7	n	88.8	10.7	0.5	90.3	9.7
Ireland	99.1	a	0.9	100.0	a	n	98.6	a	1.4	99.9	0.1
Italy	93.1	a	6.9	96.2	a	3.8	94.3	1.0	4.8	99.2	0.8
Japan	99.0	a	1.0	93.1	a	6.9	69.2	a	30.8	98.8	1.2
Korea	98.7	a	1.3	81.4	18.6	a	52.5	47.5	a	100.0	a
Luxembourg	92.3	0.6	7.1	80.5	11.4	8.0	84.1	7.5	8.5	100.0	n
Mexico	91.9	a	8.1	87.2	a	12.8	80.1	a	19.9	100.0	a
Netherlands	m	m	m	m	m	m	m	m	m	99.1	0.9
New Zealand	87.7	10.2	2.2	83.1	11.8	5.1	74.0	20.4	5.6	89.9	10.1
Norway	97.8	2.2	x(2)	97.1	2.9	x(5)	90.7	9.3	x(8)	98.7	1.3
Poland	98.0	0.6	1.5	97.0	0.8	2.2	90.2	0.9	8.9	95.4	4.6
Portugal	88.9	2.6	8.5	88.0	6.5	5.5	81.2	5.2	13.5	100.0	a
Slovak Republic	94.7	5.3	n	93.9	6.1	n	87.8	12.2	n	98.9	1.1
Spain	68.7	28.0	3.4	68.1	28.9	3.0	78.3	11.9	9.8	91.6	8.4
Sweden	93.2	6.8	n	91.5	8.5	n	89.6	10.4	n	90.2	9.8
Switzerland	95.9	1.3	2.8	92.7	2.5	4.8	92.8	3.1	4.2	99.8	0.2
Turkey	98.0	a	2.0	a	a	a	97.4	a	2.6	100.0	n
United Kingdom	94.7	a	5.3	94.2	1.0	4.7	52.9	41.6	5.5	97.3	2.7
United States	90.0	a	10.0	91.1	a	8.9	91.4	a	8.6	100.0	a
OECD average	***90.9***	***6.7***	***2.9***	***84.8***	***9.5***	***3.0***	***82.9***	***12.9***	***5.3***	***96.4***	***3.6***
EU19 average	***89.8***	***8.0***	***2.6***	***87.3***	***10.9***	***2.1***	***83.0***	***13.7***	***3.7***	***96.7***	***3.3***
Partner countries											
Brazil	89.8	a	10.2	91.2	a	8.8	87.2	a	12.8	m	m
Chile	45.2	48.6	6.2	50.5	43.4	6.1	43.2	49.9	6.9	100.0	a
Estonia	97.2	a	2.8	98.1	a	1.9	97.2	a	2.8	96.3	3.7
Israel	100.0	a	a	100.0	a	a	100.0	a	a	100.0	a
Russian Federation	99.4	a	0.6	99.6	a	0.4	99.0	a	1.0	100.0	n
Slovenia	99.8	0.2	n	99.9	0.1	n	96.5	3.3	0.2	94.2	5.8

1. Reference year 2006.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C1.6.

Students in tertiary education by type of institution or mode of study (2007)

Distribution of students, by mode of enrolment, type of institution and programme destination

	Type of institution						Mode of study			
	Tertiary-type B education			Tertiary-type A and advanced research programmes			Tertiary-type B education		Tertiary-type A and advanced research programmes	
	Public	Government-dependent private	Independent private	Public	Government-dependent private	Independent private	Full-time	Part-time	Full-time	Part-time
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD countries										
Australia	88.2	1.5	10.2	97.1	n	2.9	46.7	53.3	69.0	31.0
Austria	63.9	36.1	x(2)	88.0	12.0	n	m	m	m	m
Belgium	45.4	54.6	a	43.0	57.0	a	64.8	35.2	87.5	12.5
Canada[1]	m	m	m	m	m	m	m	m	82.7	17.3
Czech Republic	65.8	32.0	2.2	90.1	n	9.9	91.8	8.2	96.7	3.3
Denmark	97.9	1.5	0.6	97.8	2.2	n	64.6	35.4	92.5	7.5
Finland	100.0	n	a	89.4	10.6	a	100.0	a	55.6	44.4
France	71.2	8.5	20.3	86.8	0.7	12.5	100.0	a	100.0	a
Germany[2]	62.8	37.2	x(2)	95.5	4.5	x(5)	84.7	15.3	95.9	4.1
Greece	100.0	a	a	100.0	a	a	100.0	a	100.0	a
Hungary	55.3	44.7	a	86.4	13.6	a	72.1	27.9	56.8	43.2
Iceland	46.0	54.0	n	80.0	20.0	n	30.3	69.7	76.1	23.9
Ireland	92.9	a	7.1	90.9	a	9.1	70.7	29.3	80.3	19.7
Italy	87.8	a	12.2	92.3	a	7.7	100.0	n	100.0	n
Japan	7.0	a	93.0	24.3	a	75.7	96.7	3.3	89.0	11.0
Korea	15.7	a	84.3	22.1	a	77.9	m	m	m	m
Luxembourg	m	m	m	m	m	m	m	m	m	m
Mexico	94.6	a	5.4	66.1	a	33.9	100.0	a	100.0	a
Netherlands	m	m	m	m	m	m	m	m	84.4	15.6
New Zealand	65.5	28.4	6.2	97.6	2.0	0.4	39.1	60.9	60.1	39.9
Norway	52.9	47.1	x(2)	86.6	13.4	x(5)	62.8	37.2	73.2	26.8
Poland	78.3	n	21.7	67.7	a	32.3	100.0	a	53.3	46.7
Portugal	80.2	a	19.8	75.0	a	25.0	m	m	m	m
Slovak Republic	82.9	17.1	n	92.8	n	7.2	80.6	19.4	60.3	39.7
Spain	79.1	15.5	5.5	87.3	n	12.7	97.7	2.3	88.1	11.9
Sweden	62.0	38.0	a	93.7	6.3	a	90.9	9.1	48.0	52.0
Switzerland	31.5	37.8	30.7	92.4	5.7	2.0	23.3	76.7	90.2	9.8
Turkey	97.1	a	2.9	94.0	a	6.0	100.0	n	100.0	n
United Kingdom	a	100.0	n	a	100.0	n	23.7	76.3	72.0	28.0
United States	84.1	a	15.9	71.6	a	28.4	48.9	51.1	65.1	34.9
OECD average	***67.0***	***20.5***	***14.1***	***78.10***	***9.2***	***13.7***	***74.6***	***25.4***	***79.9***	***20.1***
EU19 average	***72.1***	***22.7***	***6.0***	***81.0***	***12.2***	***7.3***	***82.8***	***17.2***	***79.5***	***20.5***
Partner countries										
Brazil	15.3	a	84.7	28.1	a	71.9	m	m	m	m
Chile	7.3	2.8	89.9	34.3	22.9	42.9	100.0	a	100.0	a
Estonia	47.0	16.8	36.2	0.1	86.2	13.7	92.1	7.9	88.5	11.5
Israel	30.2	69.8	a	10.4	76.3	13.3	100.0	a	82.0	18.0
Russian Federation[2]	94.9	a	5.1	84.2	a	15.8	72.2	27.8	55.0	45.0
Slovenia	80.4	5.9	13.7	96.2	2.7	1.1	48.9	51.1	76.7	23.3

1. Year of reference 2006.
2. Excludes advanced research programmes.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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INDICATOR C2

WHO STUDIES ABROAD AND WHERE?

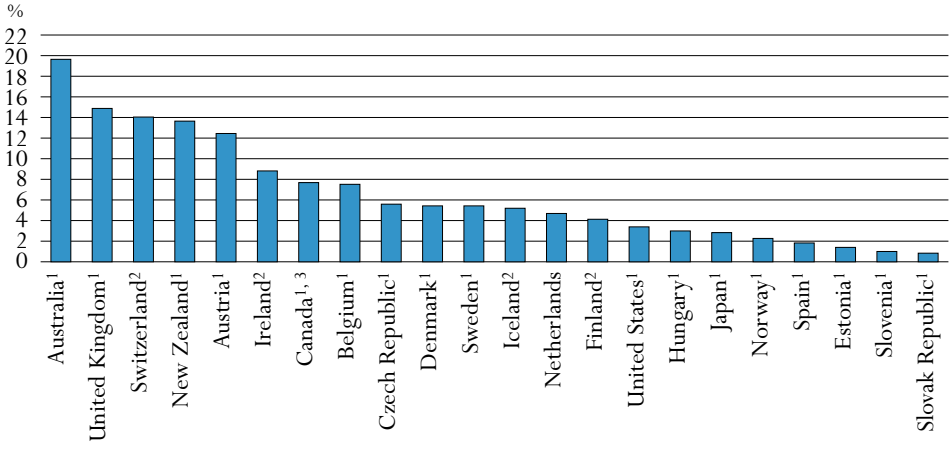
This indicator provides a picture of student mobility and of the internationalisation of tertiary education in OECD and partner countries. It shows global trends and highlights the main destinations of international students and trends in market shares of the international student pool. Some of the factors underlying students' choices of country in which to study are also examined. This indicator shows the extent of student mobility to different destinations and presents international student intake in terms of distribution by countries and regions of origin, types of programmes, and fields of study. The distribution of students enrolled outside of their country of citizenship by destination is also examined, along with the immigration implications for host countries. The proportion of international students in tertiary enrolments provides a good indication of the magnitude of student mobility in different countries.

Key results

Chart C2.1. Student mobility in tertiary education (2007)

This chart shows the percentage of international students in tertiary enrolments. According to country-specific immigration legislations and data availability constraints, student mobility is either defined on the basis of students' country of residence or the country where students received their prior education.

Student mobility – *i.e.* international students who travelled to a country different from their own for the purpose of tertiary study – ranges from below 1 to almost 20% of tertiary enrolments. International students are most numerous in tertiary enrolments in Australia, Austria, New Zealand, Switzerland and the United Kingdom.



Note: The data presented in this chart are not comparable with data on foreign students in tertiary education presented in pre-2006 editions of *Education at a Glance* or elsewhere in this chapter.
1. International students are defined on the basis of their country of residence.
2. International students are defined on the basis of their country of prior education.
3. Year of reference 2006.
Countries are ranked in descending order of the percentage of international students in tertiary education.
Source: OECD. Table C2.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Other highlights of this indicator

- In 2007, over 3.0 million tertiary students were enrolled outside their country of citizenship. This represented a 3.3% increase from the previous year in total foreign student intake reported to the OECD and the UNESCO Institute for Statistics.
- France, Germany, the United Kingdom and the United States receive 48% of all foreign students worldwide. The largest absolute numbers of international students from OECD countries are from France, Germany, Japan, Korea and the United States. Students from China and India comprise the largest numbers of international students from partner countries.
- International students make up 10% or more of the enrolments in tertiary education in Australia, Austria, New Zealand, Switzerland and the United Kingdom. International students make up more than 20% of enrolments in advanced research programmes in Australia, Belgium, Canada, New Zealand, Switzerland, the United Kingdom and the United States.
- Thirty percent or more of international students are enrolled in sciences, agriculture or engineering in Canada, Finland, Germany, Sweden, Switzerland and the United States.

Policy context

The general trend towards freely circulating capital, goods and services, coupled with changes in the openness of labour markets, has translated into growing demands for an international dimension of education and training. Indeed, as world economies become increasingly inter-connected, international skills have grown in importance for operating on a global scale. Globally oriented firms seek internationally-competent workers versed in foreign languages and having mastered basic inter-cultural skills to successfully interact with international partners. Governments as well as individuals are looking to higher education to play a role in broadening students' horizons and allowing them to develop a deeper understanding of the world's languages, cultures and business methods. One way for students to expand their knowledge of other societies and languages, and hence leverage their labour market prospects, is to study in tertiary educational institutions in countries other than their own. Several OECD governments – especially in countries of the European Union (EU) – have set up schemes and policies to promote mobility as a means of fostering intercultural contacts and building social networks for the future.

From a macroeconomic perspective, international negotiations on the liberalisation of trade in services highlight the trade implications of the internationalisation of education services. Some OECD countries already show signs of specialisation in education exports. The long-term trend towards a greater internationalisation of education (Box C2.1) is likely to have a growing impact on countries' balance of payments as a result of revenue from tuition fees and domestic consumption by international students. Additionally, it is worth noting that, along with student mobility, the cross-border electronic delivery of flexible educational programmes and abroad campuses are also relevant to the trade dimension of international tertiary education, although no comparable data yet exist.

The internationalisation of tertiary education has many economic impacts, in addition to the short-term monetary costs and benefits that are reflected in current account balances. It can provide an opportunity for smaller and/or less-developed educational systems to improve the cost efficiency of their education provision. Indeed, training opportunities abroad may constitute a cost-efficient alternative to national provision and allow countries to focus limited resources on educational programmes for which economies of scale can be generated, or to expand participation in tertiary education in spite of bottlenecks in provision.

In addition, the rapid expansion of tertiary education in OECD countries – and more recently in most emerging countries (*Education at a Glance 2005*) – has intensified the financial pressures on education systems and led to greater interest in the recruitment of foreign students. As tertiary institutions increasingly rely on revenues from foreign tuition fees, some countries actively recruit foreign students. In other cases, education abroad is encouraged as a way to address unmet demand resulting from bottlenecks caused by the rapid expansion of tertiary education. In the past few years, the rise in the knowledge economy and global competition for skills has provided a new driver for the internationalisation of education systems in many OECD countries, with the recruitment of foreign students being part of a broader strategy for the recruitment of highly skilled immigrants.

At the institutional level, the additional revenues that foreign students may generate – either through differentiated tuition fees or public subsidies – help drive international education. But tertiary education institutions also have academic incentives to engage in international activities to build or maintain their reputation in an increasingly global academic competition.

From the perspective of educational institutions, international enrolments can also constrain instructional settings and processes, insofar as the curricula and teaching methods need to be adapted to a culturally and linguistically diverse student body. These constraints are, however, outweighed by numerous benefits to host institutions. The potential for an international client base compels institutions to offer programmes that stand out among competitors and may contribute to the development of highly reactive, client-driven quality tertiary education that responds to changing needs. International enrolments can also help institutions to reach the critical mass needed to diversify the range of their educational programmes and to increase their financial resources when foreign students bear the full cost of their education (Box C2.3). Given these advantages, institutions may favour the enrolment of international students, thereby restricting access to domestic students. However, there is little evidence of this, except in some prestigious programmes of elite institutions that are in high demand (OECD, 2004).

For individuals, the returns from studying abroad depend largely on both the policies of sending countries regarding financial aid to students going abroad and the tuition fee policies of countries of destination (Box C2.3) and their financial support for international students. The cost of living in countries of study and exchange rates also affect the cost of international education. In addition, the long-term returns from international education depend greatly on how international degrees are recognised and valued by local labour markets.

The numbers of students enrolled in other countries can provide some indication of the amount of the internationalisation of tertiary education. In the future, it will also be important to develop ways to quantify and measure other components of cross-border education.

Evidence and explanations

Concepts and terminology used in this indicator

The concepts and terminology used in this indicator have changed from those used in editions of *Education at a Glance* produced before 2006. Previously, this indicator focused on foreign students in tertiary education, defined as non-citizens of the country in which they study. This concept was inappropriate for measuring student mobility because not all foreign students come for the sole purpose of studying. In particular, foreign students who are permanent residents in their country of study as a result of immigration – their own or that of their parents – are included in the total. This results in an overestimation of thenumbers of foreign students in countries with comparatively low rates of naturalisation of their immigrant populations. Moreover, citizens of the country in which they study may be mobile students (*i.e.* nationals who have lived abroad and return to their country of citizenship to study). Therefore, in an effort to improve the measurement of student mobility and the comparability of data on internationalisation, the OECD – together with Eurostat and the UNESCO Institute for Statistics – revised in 2005 the instruments used to gather data on student mobility. According to this new concept, the term "international students" refers to students who have crossed borders expressly with the intention to study.

Ideally, international student mobility is deemed to measure students who have crossed borders for the purpose of study. However, the measurement of student mobility depends to a large extent on country-specific immigration legislation, mobility arrangements and data availability constraints. For instance, the free mobility of individuals within the EU and the broader European Economic Area (EEA) makes it impossible to derive numbers of international students from visa statistics.

The OECD therefore allows countries to define as international students those who are not permanent residents of their country of study or, alternatively, those who received their prior education in another country (regardless of citizenship), depending on which operational definition is most appropriate in their national context. Overall, the country of prior education is considered a better operational criterion for EU countries so as not to omit intra-EU student mobility (Kelo *et al.*, 2005), while the residence criterion is usually a good proxy in countries that require a student visa to enter the country for educational purposes.

The convention adopted here is to use the term "international student" when referring to student mobility and the term "foreign student" for non-citizens enrolled in a country (*i.e.* including some permanent residents and therefore an overestimate of actual student mobility). However since not all countries are yet able to report data on student mobility on the basis of students' country of residence or of prior education, some tables and charts present indicators on both international and foreign students, albeit separately, to emphasise the need for caution in interpreting the results.

In this indicator, data on total foreign enrolments worldwide are based on the number of foreign students enrolled in countries reporting data to the OECD and to the UNESCO Institute for Statistics and thus may be underestimated. In addition, all trend analyses in this indicator are based on numbers of foreign students at different points in time, as time series on student mobility are not yet available. Work is under way to fill this gap and develop retrospective time series on student mobility for future editions of *Education at a Glance*.

Trends in foreign student numbers

In 2007, 3.0 million tertiary students were enrolled outside their country of citizenship, of whom 2.5 million (83.5%) studied in the OECD area. This represented a 3.3% increase of 96 000 additional individuals in total foreign enrolments worldwide since the previous year. In the OECD area the increase was very slightly larger at 3.4%. Since 2000, the number of foreign tertiary students enrolled in the OECD area and worldwide increased by 59%, for an average annual increase of 7% (Table C2.6).

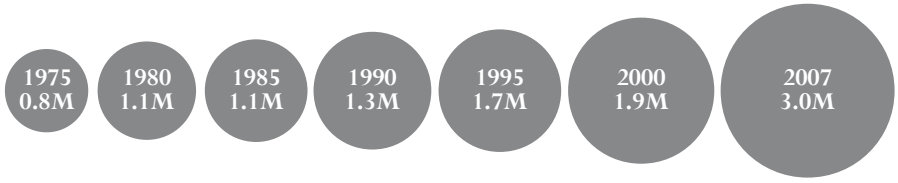
Compared to 2000, the number of foreign students enrolled in tertiary education more than doubled in Australia, the Czech Republic, Greece, Ireland, Italy, Korea, the Netherlands, New Zealand, Poland and Spain and in the partner countries Chile and Estonia. In contrast, the number of foreign students enrolled in Belgium, Turkey and the United States, grew by about 25% or less (Table C2.1). Changes in foreign student numbers between 2000 and 2007 indicate that, on average, the number of foreign students has grown faster in the OECD area than in the EU19 countries of the OECD, by 135% and 97%, respectively (Table C2.1).

The combination of OECD and UNESCO Institute for Statistics data makes it possible to examine longer-term trends and illustrates the dramatic growth in foreign enrolments (Box C2.1). Over the past three decades, the number of students enrolled outside their country of citizenship has risen dramatically, from 0.8 million worldwide in 1975 to 3.0 million in 2007, a more than threefold increase. Growth in the internationalisation of tertiary education has accelerated during the past 12 years, mirroring the growth in the globalisation of economies and societies.

The rise in the number of students enrolled abroad since 1975 stems from various factors. During the early years, public policies aimed at promoting and nurturing academic, cultural, social and political ties between countries played a key role, especially in the context of the European construction: building mutual understanding among young Europeans was a major policy objective. North American policies of academic co-operation had similar rationales. Over time, however, economic factors played an increasing role. Decreasing transport costs, the spread of new technologies, and faster, cheaper communication made economies and societies increasingly interdependent through the 1980s and 1990s. The trend was particularly marked in the high-technology sector and in the labour market, with the internationalisation of labour markets for the highly skilled giving individuals an incentive to gain international experience as part of their studies. The spread of information and communication technology (ICT) lowered the information and transaction costs of study abroad and boosted demand for international education.

Box C2.1. Long term growth in the number of students enrolled outside their country of citizenship

Growth in internationalisation of tertiary education (1975-2007)



Source: OECD and UNESCO Institute for Statistics.

Data on foreign enrolment worldwide comes from both the OECD and the UNESCO Institute for Statistics (UIS). UIS provided the data on all countries for 1975-1995 and most of the partner countries for 2000 and 2007. The OECD provided the data on OECD countries and the other partner economies in 2000 and 2007. Both sources use similar definitions, thus making their combination possible. Missing data were imputed with the closest data reports to ensure that breaks in data coverage do not result in breaks in time series.

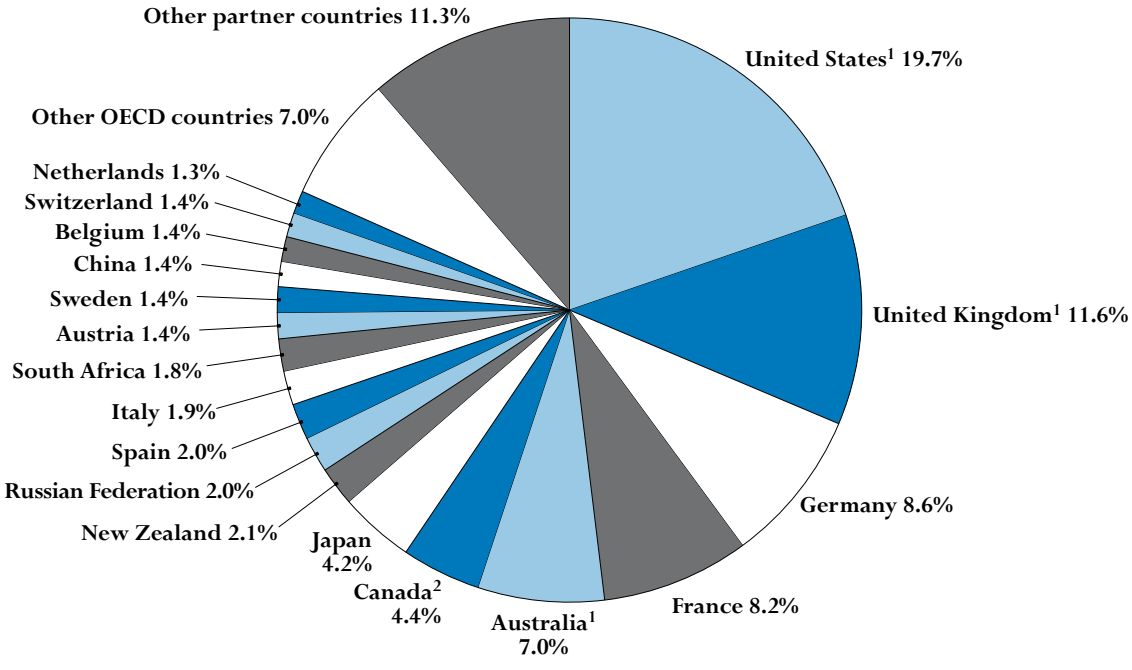
Major destinations of foreign students

In 2007, five out of ten foreign students went to the four countries that host the majority of foreign students enrolled outside of their country of citizenship. The United States received the most (in absolute terms) with 20% of all foreign students worldwide, followed by the United Kingdom (12%), Germany (9%) and France (8%). Although these destinations account for the bulk of all tertiary students pursuing their studies abroad (48%), some new players on the international education market have emerged within and outside the OECD in the past few years (Chart C2.2). Besides these four major destinations, significant numbers of foreign students were enrolled in Australia (7%), Canada (4%), Japan (4%) and New Zealand (2%), and in the partner country the Russian Federation (2%) in 2007. Note that the figures for Australia, the United Kingdom and the United States refer to international students.

C2

Chart C2.2. Distribution of foreign students in tertiary education, by country of destination (2007)

Percentage of foreign tertiary students reported to the OECD who are enrolled in each country of destination



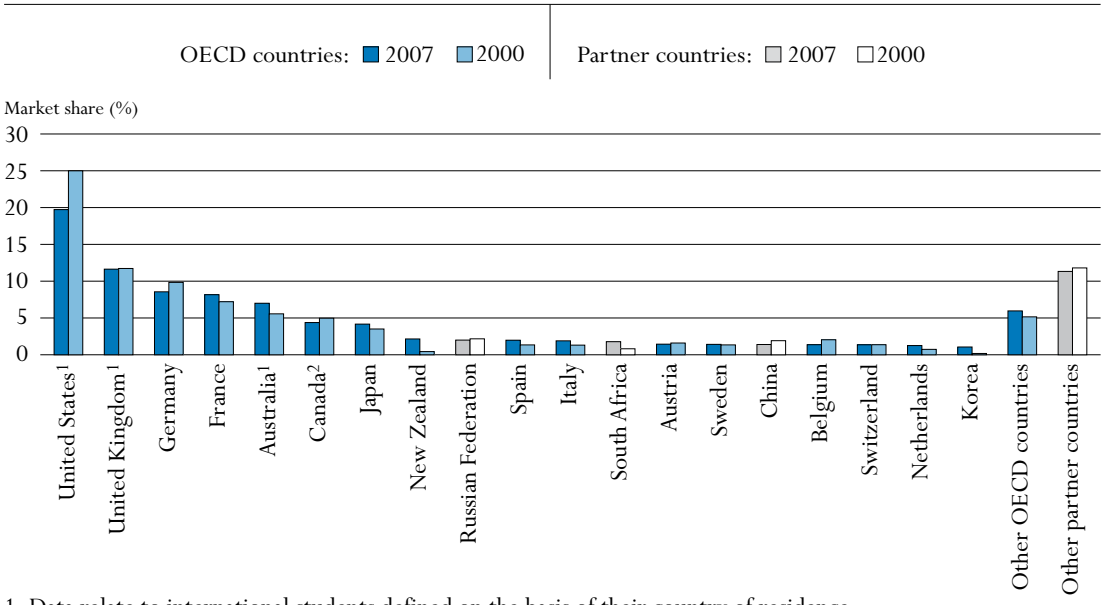
1. Data relate to international students defined on the basis of their country of residence.
2. Year of reference 2006.
Source: OECD and UNESCO Institute for Statistics for most data on partner countries. Table C2.7, available on line.
See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664653153762

Trends in market shares show the emergence of new players on the international education market

The examination of country-specific trends in market shares of the international education market – measured as a percentage of all foreign students worldwide enrolled in a given destination – sheds light on the dynamics of internationalisation of tertiary education. Over a seven-year period, the share of the United States as a preferred destination dropped from 25% to 20%. For Germany the decline was around 1 percentage point, and for Belgium, Canada and China, it was about one-half of a percentage point. In contrast, the market shares of France, Korea and South Africa expanded by around 1 percentage point. The impressive growth in Australia (1.4%) and New Zealand (1.7%) keeps them among the big players in the international education market (Chart C2.3). These changes reflect different emphases of internationalization policies across countries, ranging from proactive marketing policies in the Asia-Pacific region to a more passive approach in the traditionally dominant United States. Note that the figures for Australia, the United Kingdom and the United States refer to international students.

Chart C2.3. Trends in international education market shares (2000, 2007)

Percentage of all foreign tertiary students enrolled, by destination



1. Data relate to international students defined on the basis of their country of residence.
2. Year of reference 2006.
Countries are ranked in descending order of 2007 market shares.
Source: OECD and UNESCO Institute for Statistics for most data on partner countries. Table C2.7, available on line. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664653153762

Underlying factors in students' choice of a country of study

Language of instruction: a critical factor

The language spoken and used in instruction is an essential element in the choice of a foreign country in which to study. Therefore, countries whose language of instruction is widely spoken and read (*e.g.* English, French and German) are leading destinations of foreign students, both in absolute and relative terms. Japan is a notable exception: despite having a less widespread language of instruction, it enrols large numbers of foreign students, 93.6% of whom are from Asia (Table C2.2 and Chart C2.2).

The dominance (in absolute numbers) of English-speaking destinations (Australia, Canada, New Zealand, the United Kingdom and the United States) may be largely due to the fact that students intending to study abroad are likely to have learnt English in their home country and/or wish to improve their English language skills through immersion and study abroad. The rapid increase in foreign enrolments in Australia (index change of 200), Canada (140) and, most importantly, New Zealand (791) between 2000 and 2007 can be partly attributed to linguistic considerations (Table C2.1).

Given this pattern, an increasing number of institutions in non-English-speaking countries now offer courses in English to overcome their linguistic disadvantage in terms of attracting foreign students. This trend is especially noticeable in the Nordic countries (Box C2.2).

Box C2.2. OECD and partner countries offering tertiary programmes in English (2007)

Use of English in instruction	OECD and partner countries
All or nearly all programmes offered in English	Australia, Canada[1], Ireland, New Zealand, the United Kingdom, the United States
Many programmes offered in English	Denmark, Finland, the Netherlands, Sweden
Some programmes offered in English	Belgium (Fl.)[2], the Czech Republic, France, Germany, Hungary, Iceland, Japan, Korea, Norway, Poland, Portugal, the Slovak Republic, Switzerland[3], Turkey
No or nearly no programmes offered in English	Austria, Belgium (Fr.), Brazil, Chile, Greece, Israel, Italy, Luxembourg, Mexico[3], Portugal, the Russian Federation, Spain

Note: Assessing the extent to which a country offers a few or many programmes in English is subjective. In doing so, country size has been taken into account, hence the classification of France and Germany among countries with comparatively few English programmes, although they have more English programmes than Sweden in absolute terms.

1. In Canada, tertiary institutions are either French- (mostly Quebec) or English-speaking.
2. Masters programmes.
3. At the discretion of tertiary education institutions.

Source: OECD, compiled from brochures for prospective international students by OAD (Austria), CHES and NARIC (Czech Republic), Cirius (Denmark), CIMO (Finland), EduFrance (France), DAAD (Germany), Campus Hungary (Hungary), University of Iceland (Iceland), JPSS (Japan), NIIED (Korea), NUFFIC (Netherlands), SIU (Norway), CRASP (Poland), Swedish Institute (Sweden) and Middle-East Technical University (Turkey)

Impact of tuition fees and cost of living on foreign students' destinations

Tuition fees and cost of living are also important factors in prospective international students' choice of country. Among most EU countries (*e.g.* Austria, Belgium [Flemish Community], the Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, the Netherlands, the Slovak Republic, Spain and Sweden and the United Kingdom), international students from other EU countries had the same tuition fees as domestic students. However, in the case of Ireland, this is on condition that the EU student has been living in Ireland for three out of the previous five years. If this condition is satisfied, then the EU student is eligible for free tuition in a particular academic year. In Finland, Germany and Italy, this is extended to non-EU international students as well. While there are no tuition fees in Finland and Sweden, in Germany, tuition fees are collected at all government dependent private institutions and, in some Bundesländer, tuition fees have now been introduced at public tertiary institutions, as well. In Denmark, students from Nordic partner countries (Norway and Iceland) and EU countries are also treated the same as domestic students and thus pay no fees (fully subsidised). Most international students from non-EU or non-EEA countries, however, have to pay full tuition fee, although a limited number of talented students from non-EU/EEA countries can get scholarships covering all or parts of their tuition fees. (Box C2.3).

Among some non-EU countries (*e.g.* Iceland, Japan, Korea, Norway, the United States and the partner country the Russian Federation), all domestic and international students are treated the same. In Norway, tuition fees are equal for domestic and international student; no fees

in public institutions, but fees in some private institutions. In Iceland, all students have to pay registration fees, and for students in private schools, they also have to pay tuition fees. In Japan, all students (domestic and international) are charged full tuition fee, but international students with Japanese government scholarships don't have to pay the tuition fees, and many scholarships are also available for privately financed international students. In Korea, tuition fees and subsidies for mobile students vary depending on the contract between the school which they came from and the school they are attending. In general, most of international students in Korea pay tuition fees which are somewhat less than for domestic students. In New Zealand, international students generally pay full tuition fees (*i.e.* unsubsidised). However, international students from Australia, a partner country of New Zealand, receive special treatment in that they receive the same subsidies as domestic students. All other international students have to pay the full tuition fees (*i.e.* unsubsidised). In Australia, Canada and the partner country the Russian Federation, all international students pay full tuition fees.

The fact that Finland, Iceland, Norway and Sweden do not have tuition fees for international students and the existence of programmes in English probably explains part of the robust growth in the number of foreign students enrolled in some of these countries between 2000 and 2007 (Table C2.1). However, in the absence of fees, the high unit costs of tertiary education mean that international students place a high monetary burden on their countries of destination (Table B1.1a). For this reason, Denmark (which in the past had no tuition fees) has adopted tuition fees for non-EU and non-EEA international students as of 2006/07. Similar options are currently being discussed in Finland and Sweden, where foreign enrolments grew by more than 50% between 2000 and 2007.

Box C2.3. Tuition fees structure

Tuition fees structure	OECD and partner countries
Higher tuition fees for international students than for domestic students	Australia, Austria[1], Belgium[1], Canada, the Czech Republic[1], Denmark[1], Estonia[1], Ireland[1], the Netherlands[1], New Zealand, the Russian Federation, Turkey, the United Kingdom[1], the United States[3]
Same tuition fees for international and domestic students	France, Germany, Italy, Japan, Korea, Mexico[2], Spain
No tuition fees for either international or domestic students	Finland, Iceland, Norway, Sweden

1. For non-European Union or non-European Economic Area students.
2. Some institutions charge higher tuition fees for international students.
3. International students pay the same fees as domestic out-of-state students. However since most domestic students are enrolled in-state, international students pay higher tuition fees than most domestic students in practice.

Source: OECD. Indicator B5. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

Countries that charge their international students the full cost of education reap significant trade benefits. Several countries in the Asia-Pacific region have actually made international education an explicit part of their socio-economic development strategies and have initiated policies to attract international students on a revenue-generating or at least self-financing

basis. Australia and New Zealand have successfully adopted differentiated tuition fees for international students. In Japan and Korea, with high tuition fees that are the same for domestic and international students, foreign enrolments nevertheless grew robustly between 2000 and 2007 (see Indicator B5). This shows that tuition costs do not necessarily discourage prospective international students as long as the quality of education provided and its likely returns make the investment worthwhile. However, in choosing between similar educational opportunities, cost considerations may play a role, especially for students originating from developing countries. In this respect, the comparatively low rise in foreign enrolments in the United Kingdom and the United States between 2000 and 2007 and the deterioration of the United States' market share may be attributed to the comparatively high tuition fees charged to international students in a context of fierce competition from other primarily English-speaking destinations offering similar educational opportunities at a lower cost (Box C2.3).

A factor that might ease the cost of studying abroad is the extent to which public funding or student support for tertiary education is portable. In Belgium (Flemish Community), Finland, Iceland, the Netherlands, Norway and Sweden and the partner country Chile, the international portability of public funding for tuition or student support clearly eases some of the financial constraints borne by students.

Impact of immigration policy on foreign student destinations

In recent years, several OECD countries have softened their immigration policies to encourage the temporary or permanent immigration of their international students. Australia, Canada and New Zealand, for example, make it easy for foreign students who have studied in their universities to settle by granting them additional points for their immigration file. This makes these countries more attractive to students and strengthens their knowledge economy. As a result, immigration considerations may also affect some international students' choice between alternative educational opportunities abroad. In addition, the total freedom of movement of workers within Europe explains part of the high level of student mobility in Europe compared to that between the countries of North America, as the North American Free Trade Agreement (NAFTA) does not include the free movement of workers within a common labour market.

Other factors

Other important factors for foreign students include the academic reputation of particular institutions or programmes; the flexibility of programmes with respect to counting time spent abroad towards degree requirements; the limitations of tertiary education provision in the home country; restrictive university admission policies at home; geographical, trade or historical links between countries; future job opportunities; cultural aspirations; and government policies to facilitate transfer of credits between home and host institutions. The transparency and flexibility of courses and degree requirements are also important.

Extent of student mobility in tertiary education

The foregoing analysis has focused on trends in absolute numbers of foreign students and their distribution by countries of destination since time series or global aggregates on student mobility do not exist. It is also possible to measure the extent of student mobility in each country of destination by examining the proportion of international students in total tertiary enrolments.

This has the advantage of taking the size of different tertiary education systems into account and highlighting those that are highly internationalised, regardless of their size and the importance of their absolute market share.

Wide variations in the proportion of international students enrolled in OECD and partner countries

Among countries for which data on student mobility are available, Australia, Austria, New Zealand, Switzerland and the United Kingdom display the highest levels of incoming student mobility, measured as the proportion of international students in their total tertiary enrolment. In Australia, 19.5% of tertiary students have come to the country in order to pursue their studies. Similarly, international students represent 12.4% of total tertiary enrolments in Austria, 13.6% in New Zealand, 14.0% in Switzerland and 14.9% in the United Kingdom. In contrast, incoming student mobility is 1% or less of total tertiary enrolments in the Slovak Republic and the partner country Slovenia (Table C2.1 and Chart C2.1).

Among countries where data using the preferred definition of mobile students are not available, foreign enrolments constitute a large group of tertiary students in France (11.3%) and Germany (11.3%), an indication of significant levels of incoming student mobility. However foreign enrolments represent 1% or less of total tertiary enrolments in Korea, Poland, Turkey and the partner country the Russian Federation (Table C2.1).

Student mobility at different levels of tertiary education

The proportion of international students at different levels of tertiary education in each country of destination also sheds light on patterns of student mobility. A first observation is that, with the exception of Japan and Spain, tertiary-type B programmes are far less internationalised than tertiary-type A programmes, suggesting that international students are mostly attracted to traditional academic programmes for which degree transferability is often easier. With the exception of Italy and Portugal, this observation also holds true for countries where data using the preferred definition of student mobility are not available (Table C2.1).

In Australia, Austria, the Czech Republic, Denmark, the Slovak Republic, Sweden and in the partner country Estonia, the proportions of international students are roughly the same in tertiary-type A and advanced research programmes, an indication that these countries of destination are successful at attracting students from abroad from the start of their tertiary education, and keeping or attracting them beyond their first degrees. Among countries where data using the preferred definition of mobile students are not available, this can also be seen in Turkey. In contrast, other countries display significantly higher incoming student mobility relative to total enrolments in advanced research programmes than in tertiary-type A programmes. This pattern is clear in Belgium, Canada, Finland, Hungary, Iceland, Japan, New Zealand, Norway, Spain, Switzerland, the United Kingdom and the United States and in the partner country Slovenia, as well as in France, Italy, Korea, Poland and Portugal and in the partner country Chile, countries where data using the preferred definition of student mobility are not available. It may reflect the attractiveness of advanced research programmes in these countries or a preference for recruitment of international students at higher levels of education to capitalise on their contribution to domestic research and development or in anticipation of their subsequent recruitment as highly qualified immigrants.

Profile of international student intake in different destinations

Asia leads among regions of origin

Asian students form the largest group of international students enrolled in countries reporting data to the OECD or the UNESCO Institute for Statistics: 48.2% of the total in all reporting destinations (46.8% of the total in OECD countries, and 55.1% of the total in partner countries).

Their predominance in OECD countries is greatest in Australia, Japan and Korea, where more than 75% of international or foreign students originate from Asia. In OECD countries, the Asian group is followed by Europeans (24.9%), particularly EU citizens (16.9%). Students from Africa account for 10.5% of all international students, while those from North America account for only 3.8%. Finally, students from South America represent 5.4% of the total. Altogether 31.2% of international students enrolled in the OECD area originate from another OECD country (Table C2.2).

Main countries of origin of international students

The predominance of students from Asia and Europe is also clear when looking at individual countries of origin. Students from France, Germany, Japan and Korea represent the largest groups of international students enrolled in OECD countries, at 2.2%, 3.2%, 2.3% and 4.4% of the total, respectively, followed by students from Canada and the United States at 1.8% and 2.0%, respectively (Table C2.2).

Among international students originating from partner countries, students from China represent by far the largest group, with 16.3% of all international students enrolled in the OECD area (not including an additional 1.4% from Hong Kong, China) (Table C2.2). Their destination of choice is the United States, followed closely by Japan, with 21.6% and 17.5%, respectively, of all international Chinese students studying abroad. Students from China are followed by those from India (6.2%), Malaysia (1.8%), Morocco (1.7%) and the Russian Federation (1.4%). A significant number of Asian students studying abroad also come from Indonesia, the Islamic Republic of Iran, Pakistan, Singapore, Thailand and Vietnam (Table C2.3 and Table C2.7, available on line).

The proportion of international students by level and type of tertiary education highlights specialisations

In some countries, a comparatively large proportion of international students are enrolled in tertiary-type B programmes. This is the case in Belgium (30.6%), Japan (21.3%), New Zealand (25.3%) and Spain (34.0%). In Greece, Korea and the partner country Chile, where data using the preferred definition of student mobility are not available, foreign enrolments in tertiary-type B programmes also constitute a large group of foreign students (34.7%, 22.4% and 29.6% respectively) (Table C2.4).

In other countries, a large proportion of their international students enrol in advanced research programmes. This is particularly true in Spain (22.3%) and Switzerland (26.5%). Such patterns suggest that these countries offer attractive advanced programmes to prospective international graduate students. This concentration can also be observed – to a more limited extent – in Canada (11.4%), Finland (13.4%), Japan (10.6%), the United Kingdom (11.9%) and the United States (15.7%). Among countries where data using the preferred definition of mobile students

are not available, foreign enrolments in advanced research programmes constitute a large group of foreign students in France (11.0%) and Portugal (10.0%). All of these countries are likely to benefit from the contribution of these high-level international students to domestic research and development. In addition, this specialisation can also generate higher tuition revenue per international student in the countries charging full tuition costs to foreign students (Box C2.3).

The proportion of international students by field of education underlines magnet centres

As shown in Table C2.5, sciences attract at least one in six international students in Canada (18.5%), Germany (17.0%), Iceland (18.0%), New Zealand (18.2%), Switzerland (16.7%) and the United States (18.7%), but fewer than one in fifty in Japan (1.2%). However, the picture changes slightly when agriculture, engineering, manufacturing and construction programmes are included among scientific disciplines. Finland receives 41.8% of its international students in these fields. The proportion of international students enrolled in agriculture, sciences or engineering is also high in Canada (34.5%), Germany (38.0%), Hungary (28.3%), Sweden (39.3%), Switzerland (33.5%), the United Kingdom (29.4%), the United States (34.6%) and in the partner country Slovenia (29.7%). Similarly, among countries where data using the preferred definition of mobile students are not available, agriculture, sciences and engineering attract at least 28% of foreign students in France (28.6%) and the Slovak Republic (30.3%). In contrast, few foreign students are enrolled in agriculture, sciences and engineering in Poland (Chart C2.4).

Most countries that enrol large proportions of their international students in agriculture, sciences and engineering deliver programmes in English. In Germany, the large proportion of foreign students in scientific disciplines may also reflect its strong tradition in these fields.

Non-anglophone countries tend to enrol a higher proportion of their international students in the humanities and the arts, areas that are favoured by over 20% of the international students in Austria (22.9%), Germany (21.5%), Iceland (42.9%), Japan (25.4%) and the partner country Slovenia (21.3%). Among countries where data using the preferred definition of mobile students are not available, this is also the case in France (20.1%).

Social sciences, business and law programmes also attract international students in large numbers. In Australia, the Netherlands, New Zealand and the partner country Estonia, these fields enrol around half of all international students (at 55.6%, 45.4%, 45.7% and 57.0%, respectively). Among countries where data using the preferred definition of mobile students are not available, Portugal (49.1%) has the largest proportion of their foreign students enrolled in these subjects.

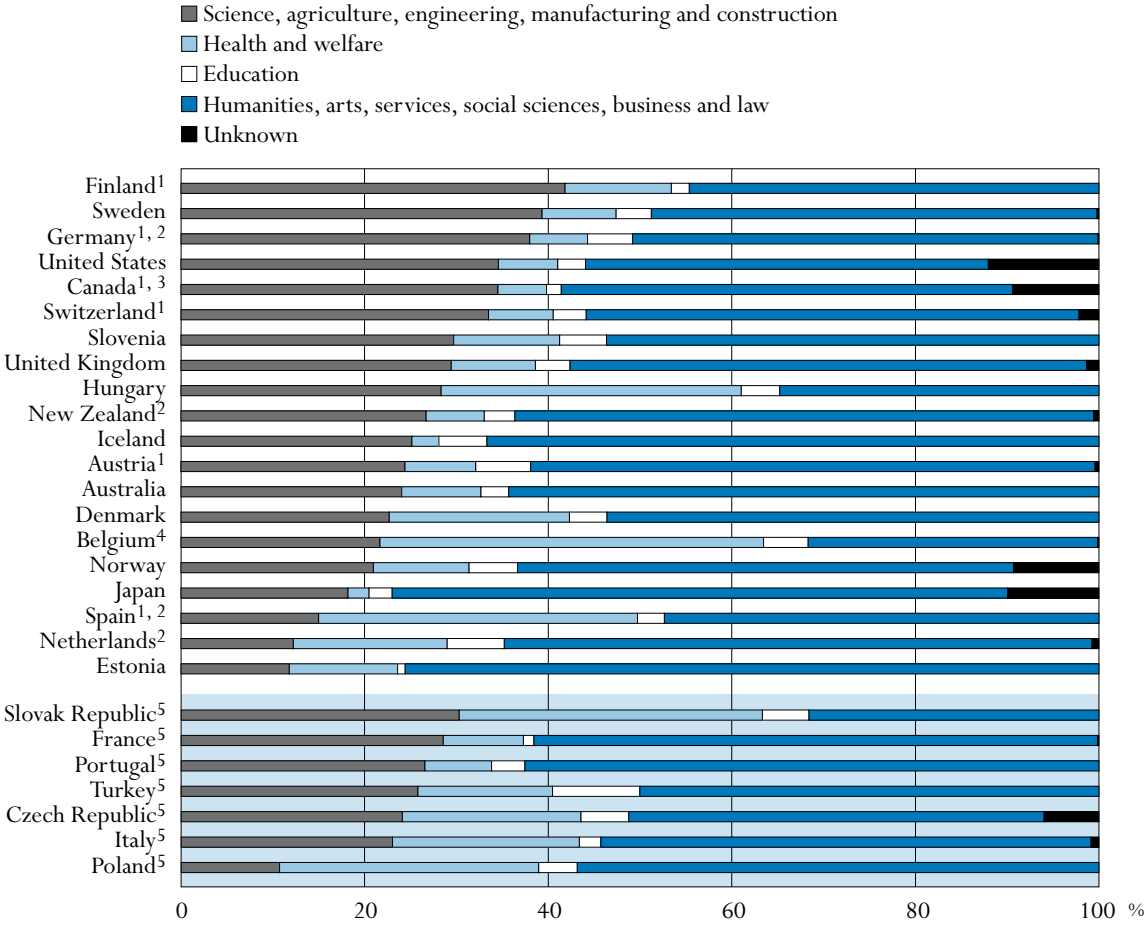
The situation of health and welfare is fairly specific since it depends to a large extent on national policies relating to recognition of medical degrees. Health and welfare programmes attract large proportions of international students in EU countries, most notably in Belgium (41.8%) and Hungary (32.7%). Among countries where data using the preferred definition of mobile students are not available, health and welfare programmes are also chosen by one-fifth to one-third of foreign students in Italy (20.4%), Poland (28.2%) and the Slovak Republic (33.0%). This pattern relates to the quotas imposed in many European countries which restrict access to educational programmes in the medical field. This increases the demand for training in other EU countries to bypass quotas and take advantage of EU countries' automatic recognition of medical degrees under the European Medical Directive.

Overall, the concentration of international students in various disciplines in countries of destination highlights magnet programmes that attract students from abroad in large numbers. This attraction results from many factors on both the supply and demand side.

On the supply side, some destinations offer centres of excellence or traditional expertise able to attract students from other countries in large numbers (*e.g.* Finland and Germany in sciences and engineering). In the humanities and arts, some destinations also have a natural monopoly on some programmes. This is especially obvious for linguistic or cultural studies (*e.g.* Austria, Germany and Japan).

Chart C2.4. Distribution of international students by field of education (2007)

Percentage of international tertiary students enrolled in different fields of education



1. Excludes tertiary-type B programmes.
2. Excludes advanced research programmes.
3. Year of reference 2006.
4. Excludes data for social advancement education.
5. Distribution of foreign students by field of education. These data are not comparable with data on international students and are therefore presented separately.

Countries are ranked in descending order of the proportion of international students enrolled in sciences, agriculture, engineering, manufacturing and construction.

Source: OECD. Table C2.5. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664653153762

On the demand side, the characteristics of international students can help to explain their concentration in certain fields of education. For instance, students in scientific disciplines are usually less likely to be fluent in many different languages, which may explain their stronger propensity to study in countries offering education programmes in English, and their lesser propensity to enrol in countries where these are less common. Similarly, the demand of many Asian students for business training may explain the strong concentration of international students in social sciences, business and law in neighbouring Australia and New Zealand and to a lesser extent in Japan. Finally, EU provisions for the recognition of medical degrees clearly drive the concentration of international students in health and welfare programmes in EU countries.

Destinations of citizens enrolled abroad

When studying in tertiary education outside of their country of citizenship, OECD students enrol predominantly in another country of the OECD area. On average, only 3.6% of foreign students from OECD countries are enrolled in a partner country. The proportion of foreign students from partner countries enrolled in another partner country is significantly higher, with more than 22% of foreign students from Chile, Estonia, Israel and the Russian Federation enrolled in another partner country. In contrast, students from Iceland (0.1%), Ireland (0.1%), Luxembourg (0.1%) and the Slovak Republic (0.3%) display an extremely low propensity to study outside of the OECD area (Table C2.3).

Language considerations, geographic proximity and similarity of education systems are all important determinants of the choice of destination. Geographic considerations and differences in entry requirements are likely explanations of the concentration of students from Germany in Austria, from Belgium in France and the Netherlands, from France in Belgium, from Canada in the United States, from New Zealand in Australia, from China in Japan, etc. Language issues as well as academic traditions also shed light on the propensity for Anglophone students to concentrate in other countries of the Commonwealth or in the United States, even those that are geographically distant. Migration networks also play a role, as illustrated by the concentration of students with Portuguese citizenship in France, students from Turkey in Germany or from Mexico in the United States.

Finally, international students' destinations also highlight the attractiveness of specific education systems, whether due to considerations of academic reputation or subsequent immigration opportunities. In this respect, it is noteworthy that students from China are mostly in Australia, Canada, France, Germany, Japan, Korea, New Zealand, the United Kingdom and the United States, most of which have schemes to facilitate the immigration of international students. Similarly, students from India favour Australia, the United Kingdom and the United States; these three destinations attract 82.6% of Indian citizens enrolled abroad (Table C2.3).

Definitions and methodologies

Data sources, definitions and reference period

Data on international and foreign students refer to the academic year 2006/07 and are based on the UOE data collection on education statistics administered by the OECD in 2008 (for details see Annex 3 at *www.oecd.org/edu/eag2009*). Additional data from the UNESCO Institute for Statistics are also included.

Students are classified as international students if they left their country of origin and moved to another country for the purpose of study. Depending on country-specific immigration legislation, mobility arrangements (*e.g.* free mobility of individuals within the EU and EEA areas) and data availability, international students may be defined as students who are not permanent or usual residents of their country of study or alternatively as students who obtained their prior education in a different country (*e.g.* EU countries).

Permanent or usual residence in the reporting country is defined according to national legislation. In practice, this means holding a student visa or permit, or electing a foreign country of domicile in the year prior to entering the education system of the country reporting data. The country of prior education is defined as the country in which students obtained the qualification required to enrol in their current level of education, *i.e.* the country in which they obtained their upper secondary or post-secondary non-tertiary education for international students enrolled in tertiary-type A and tertiary-type B programmes and the country in which they obtained their tertiary-type A education for international students enrolled in advanced research programmes. Country-specific operational definitions of international students are indicated in the tables as well as in Annex 3 (*www.oecd.org/edu/eag2009*).

Students are classified as foreign students if they are not citizens of the country in which the data are collected. While pragmatic and operational, this classification is inappropriate for capturing student mobility because of differing national policies regarding the naturalisation of immigrants. For instance, while Australia and Switzerland report similar intakes of foreign students relative to their tertiary enrolments – 22.5% and 19.3%, respectively – these proportions reflect significant differences in the actual levels of student mobility – 19.5% of tertiary enrolments in Australia and 14.0% in Switzerland (Table C2.1). This is because Australia has a higher propensity to grant permanent residence to its immigrant populations than Switzerland. Therefore, interpretations of data based on the concept of foreign students in terms of student mobility and bilateral comparisons need to be made with caution.

Methodologies

Data on international and foreign students are obtained from enrolments in their countries of destination. The method of obtaining data on international and foreign students is therefore the same as that used for collecting data on total enrolments, *i.e.* records of regularly enrolled students in an educational programme. Domestic and international students are usually counted on a specific day or period of the year. This procedure makes it possible to measure the proportion of international enrolments in an education system, but the actual number of individuals involved may be much higher since many students study abroad for less than a full academic year, or participate in exchange programmes that do not require enrolment (*e.g.* inter-university exchange or advanced research short-term mobility). Moreover, the international student body comprises some distance-learning students who are not, strictly speaking, mobile students. This pattern of distance enrolments is fairly common in the tertiary institutions of Australia, the United Kingdom and the United States (OECD, 2004).

Since data on international and foreign students are obtained from tertiary enrolments in their country of destination, the data relate to incoming students rather than to students going abroad. Countries of destination covered by this indicator include all of the OECD countries (with the

exception of Luxembourg and Mexico) and the partner countries Chile, Estonia, the Russian Federation and Slovenia, as well as partner countries reporting similar data to the UNESCO Institute for Statistics, in order to derive global figures and to examine the destinations of students and trends in market shares.

Data on students enrolled abroad as well as trend analyses are not based on the numbers of international students, but on the number of foreign citizens on whom data consistent across countries and over time are readily available. Yet the data do not include students enrolled in OECD and partner countries that did not report foreign students to the OECD or to the UNESCO Institute for Statistics. All statements on students enrolled abroad may therefore underestimate the real number of citizens studying abroad (Table C2.3), especially in cases where many citizens study in countries that do not report their foreign students to the OECD or UNESCO Institute for Statistics (*e.g.* China, India).

Table C2.1 displays international as well as foreign enrolments as a proportion of total enrolment at each level of tertiary education. Total enrolment, used as a denominator, comprises all persons studying in the country (including domestic and international students), but excludes students from that country who study abroad. The table also exhibits changes between 2000 and 2007 in foreign enrolments for all tertiary education.

Table C2.2, Table C2.4 and Table C2.5 show the distribution of international students enrolled in an education system – or foreign students for countries that do not have information on student mobility – according to their country of origin in Table C2.2, according to their level and type of tertiary education in Table C2.4, and according to their field of education in Table C2.5.

Table C2.3 presents the distribution of citizens of a given country enrolled abroad according to their country of destination (or country of study). As mentioned above, the total number of students enrolled abroad, which is used as a denominator, covers only students enrolled in other countries reporting data to the OECD or the UNESCO Institute for Statistics. Therefore, the resulting proportions may be biased and overestimated for countries with large numbers of students studying in non-reporting countries.

Table C2.6 shows trends in the absolute numbers of foreign students reported by OECD countries and worldwide between 2000 and 2007, and the indexes of change between 2007 and the years from 2000 to 2006. The figures are based on the number of foreign students enrolled in countries reporting data to the OECD and to the UNESCO Institute for Statistics. Since data for partner countries that did not report to the OECD were not included in the past, the figures are not strictly comparable with those published in editions of *Education at a Glance* prior to 2006.

Table C2.7 (available on line) provides the matrix of foreign students' numbers by country of origin and country of destination.

Further references

The relative importance of international students in the education system affects tertiary entry and graduation rates and may artificially increase them in some fields or levels of education (see Indicators A2 and A3). It may also affect the mix recorded between public and private expenditure (see Indicator B3).

In countries in which differentiated tuition fees are applied to international students, student mobility may boost the financial resources of tertiary educational institutions and contribute to the financing of the education system. On the other hand, international students may represent a high financial burden for countries in which tertiary tuition fees are low or inexistent given the high level of unit costs in tertiary education (see Indicator B5).

International students enrolled in a country different from their own are only one aspect of the internationalisation of tertiary education. New forms of cross-border education have emerged in the last decade, including the mobility of educational programmes and institutions across borders. Yet, cross-border tertiary education has developed quite differently and in response to different rationales in different world regions. For a detailed analysis of these issues, as well as the trade and policy implications of the internationalisation of tertiary education see OECD (2004).

The following additional material relevant to this indicator is available on line at:
StatLink http://dx.doi.org/10.1787/664653153762

- ***Table C2.7. Number of foreign students in tertiary education, by country of origin and destination (2007) and market shares in international education (2000, 2007)***

Table C2.1.

Student mobility and foreign students in tertiary education (2000, 2007)

International mobile students enrolled as a percentage of all students (international plus domestic), foreign enrolments as a percentage of all students (foreign and national) and index of change in the number of foreign students

Reading the first column: 19.5% of all students in tertiary education in Australia are international students and 14.0% of all students in tertiary education in Switzerland are international students. According to country-specific immigration legislation and data availability constraints, student mobility is either defined on the basis of students' country of residence (*i.e.* Australia) or the country where students received their prior education (*i.e.* Switzerland). The data presented in this table on student mobility represent the best available proxy of student mobility for each country.

Reading the fifth column: 22.5% of all students in tertiary education in Australia are not Australian citizens, and 19.3% of all students in tertiary education in Switzerland are not Swiss citizens.

		Student mobility				Foreign enrolments				
		International students as a percentage of all tertiary enrolment				Foreign students as a percentage of all tertiary enrolment				
		Total tertiary	Tertiary-type B programmes	Tertiary-type A programmes	Advanced research programmes	Total tertiary	Tertiary-type B programmes	Tertiary-type A programmes	Advanced research programmes	Index of change in the number of foreign students, total tertiary (2000=100)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	**Australia**[1]	19.5	15.5	20.2	20.8	22.5	15.8	23.4	31.5	200
	Austria[1]	12.4	1.9	13.3	15.1	16.7	5.6	17.5	21.5	143
	Belgium[1, 2]	7.5	5.3	8.6	20.5	12.2	9.5	13.7	29.9	107
	Canada[1, 3, 4, 5]	7.7	m	7.1	21.2	14.8	m	13.8	39.0	140
	Czech Republic[1]	5.6	0.7	5.9	7.2	6.8	1.1	7.2	8.9	448
	Denmark[1]	5.5	4.1	5.6	6.6	9.0	10.5	8.5	21.5	162
	Finland[6]	4.1	n	3.8	7.8	3.3	n	2.9	8.0	181
	France	m	m	m	m	11.3	4.5	12.4	37.9	180
	Germany[6]	m	m	10.6	m	11.3	3.8	12.6	m	138
	Greece[3]	m	m	m	m	3.5	3.4	3.8	m	246
	Hungary[1]	3.0	0.4	3.1	6.7	3.5	0.5	3.6	7.5	153
	Iceland[6]	5.2	1.7	5.2	11.9	4.9	1.0	4.9	14.4	194
	Ireland[6]	8.8	m	m	m	m	m	m	m	226
	Italy	m	m	m	m	2.8	16.0	2.7	5.9	230
	Japan[1]	2.9	2.7	2.6	16.1	3.1	2.7	2.9	16.8	189
	Korea	m	m	m	m	1.0	0.6	1.1	5.5	947
	Luxembourg	m	m	m	m	m	m	m	m	m
	Mexico	m	m	m	m	m	m	m	m	m
	Netherlands[3]	4.7	n	4.7	m	6.4	n	6.5	m	270
	New Zealand[1]	13.6	12.8	13.5	26.6	26.8	24.2	27.1	45.7	791
	Norway[1]	2.2	0.7	2.2	4.8	7.3	3.4	6.9	23.4	180
	Poland	m	m	m	m	0.6	n	0.6	2.8	213
	Portugal	m	m	m	m	4.9	6.9	4.6	9.6	169
	Slovak Republic[1]	0.9	0.4	0.9	0.8	0.9	0.5	0.9	0.9	128
	Spain[1]	1.8	4.6	1.0	9.9	3.4	4.6	2.2	21.9	235
	Sweden[1]	5.4	0.6	5.6	5.9	10.3	4.0	10.1	21.7	167
	Switzerland[3, 6]	14.0	m	13.9	45.0	19.3	15.5	17.3	45.0	158
	Turkey	m	m	m	m	0.8	0.1	1.0	2.6	109
	United Kingdom[1]	14.9	6.2	15.9	42.1	19.5	12.1	20.1	46.0	158
	United States[1]	3.4	2.0	3.1	23.7	m	m	m	m	125
	OECD average	***7.1***	***3.5***	***7.3***	***16.3***	***8.7***	***5.9***	***8.8***	***20.4***	***235***
	EU 19 average	***6.2***	***2.2***	***6.6***	***12.3***	***7.4***	***4.9***	***7.6***	***17.4***	***197***
Partner countries	**Brazil**	m	m	m	m	m	m	m	m	m
	Chile	m	m	m	m	1.1	0.8	1.2	13.4	229
	Estonia[1]	1.4	0.2	2.0	3.3	3.2	3.0	3.3	4.0	255
	Israel	m	m	m	m	m	m	m	m	m
	Russian Federation[3, 5]	m	m	m	m	0.6	0.3	0.7	m	146
	Slovenia[1]	1.0	0.4	1.4	7.0	1.3	0.7	1.6	7.9	194

1. For the purpose of measuring student mobility, international students are defined on the basis of their country of residence.
2. Excludes data for social advancement education.
3. Percentage in total tertiary underestimated because of the exclusion of certain programmes.
4. Year of reference 2006.
5. Excludes private institutions.
6. For the purpose of measuring student mobility, international students are defined on the basis of their country of prior education.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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C2

Table C2.2.

Distribution of international and foreign students in tertiary education, by country of origin (2007)

Number of international and foreign students enrolled in tertiary education from a given country of origin as a percentage of all international or foreign students in the country of destination, based on head counts.

The table shows for each country the proportion of international students in tertiary education who are residents of or had their prior education in a given country of origin. When data on student mobility are not available, the table shows the proportion of foreign students in tertiary education that have citizenship of a given country of origin.

Reading the third column: 0.7% of international tertiary students in Canada are German residents, 0.2% of international tertiary students in Canada are Greek residents, etc.

Reading the seventh column: 4.6% of international tertiary students in Ireland had their prior education in Germany, 0.3% of international tertiary students in Ireland had their prior education in Greece, etc.

Reading the 16th column: 28.4% of foreign tertiary students in Austria are German citizens, 0.6% of foreign tertiary students in Austria are Greek citizens, etc.

	Countries of destination																	
	OECD countries																	
	International students															Foreign students		
Countries of origin	Australia[1]	Belgium[1,2]	Canada[1,3,4,5]	Denmark[1]	Germany[3,6,7]	Iceland[6]	Ireland[6]	Netherlands[7]	New Zealand[1]	Slovak Republic[1]	Spain[1,3]	Sweden[1]	Switzerland[3,6]	United Kingdom[1]	United States[1]	Austria[3,8]	Czech Republic[8]	Finland[8]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
OECD countries																		
Australia	a	0.1	0.3	2.4	0.2	0.7	0.4	n	8.3	n	n	1.4	0.1	0.5	0.5	0.2	n	0.3
Austria	0.1	0.1	0.1	0.5	2.4	2.3	0.4	0.1	0.1	1.1	0.2	1.6	0.9	0.4	0.1	a	0.1	0.4
Belgium	n	a	0.4	1.2	0.7	1.0	0.5	1.8	n	n	0.8	1.1	0.3	0.7	0.1	0.2	n	0.2
Canada	1.9	0.2	a	1.0	0.3	2.2	2.9	0.1	1.2	0.4	0.1	1.3	0.4	1.4	4.9	0.1	0.2	0.9
Czech Republic	n	n	0.1	0.1	0.9	1.7	0.2	0.1	n	24.9	0.1	0.8	0.2	0.3	0.2	1.3	a	0.5
Denmark	0.1	n	0.1	a	0.2	5.8	0.1	0.1	0.2	n	0.1	0.6	0.1	0.4	0.2	0.2	n	0.4
Finland	n	n	0.1	0.9	0.4	3.8	0.5	0.2	0.1	n	0.1	2.8	0.1	0.5	0.1	0.4	n	a
France	0.4	35.5	6.9	4.3	2.9	7.7	5.1	0.6	1.2	0.4	2.6	6.1	6.5	3.7	1.1	1.1	0.1	1.6
Germany	0.9	1.0	0.7	9.1	a	13.1	4.6	18.0	3.9	1.5	2.6	9.5	10.6	4.0	1.5	28.4	1.0	4.0
Greece	n	0.3	0.2	0.4	1.3	0.1	0.3	0.2	n	9.6	0.3	0.4	0.3	4.6	0.3	0.6	0.5	0.6
Hungary	n	0.1	0.1	0.2	1.0	0.7	0.2	0.2	n	1.3	0.1	0.3	0.2	0.3	0.1	2.8	0.1	1.1
Iceland	n	n	n	7.6	n	a	0.1	n	n	0.1	n	0.1	n	0.1	0.1	n	n	0.2
Ireland	0.1	0.1	0.1	0.8	0.2	0.6	a	0.1	0.1	0.6	0.3	0.4	n	4.6	0.2	0.1	0.2	0.3
Italy	0.1	0.4	0.3	1.2	1.8	4.0	1.7	0.3	0.1	0.3	3.1	2.3	2.8	1.7	0.6	14.2	0.1	1.6
Japan	1.5	0.1	1.4	0.2	1.0	1.0	0.5	0.1	2.9	0.2	0.2	0.5	0.3	1.6	6.1	0.7	0.1	1.0
Korea	2.6	0.1	0.1	0.1	1.9	0.1	0.2	0.1	0.1	0.5	0.2	0.5	0.2	1.2	10.7	0.8	0.1	0.3
Luxembourg	n	4.3	n	0.6	1.2	n	0.1	n	n	n	0.1	n	0.4	0.3	n	1.1	n	n
Mexico	0.2	0.1	1.4	0.3	0.7	0.4	0.1	0.1	0.2	0.4	6.4	0.5	0.2	0.5	2.4	0.1	n	0.6
Netherlands	0.1	8.3	0.2	0.9	0.4	1.6	0.5	a	0.2	0.1	0.4	2.1	0.2	0.8	0.3	0.3	0.1	0.9
New Zealand	0.9	n	0.1	0.7	0.1	0.1	n	n	a	n	n	0.2	n	0.2	0.1	n	n	0.1
Norway	0.7	n	0.2	15.2	0.3	3.8	0.7	0.2	0.5	7.7	0.1	0.7	0.1	0.9	0.2	0.1	1.0	0.8
Poland	0.1	0.3	0.3	1.5	6.1	4.0	1.5	0.7	n	2.1	0.8	1.7	0.6	1.9	0.5	3.4	1.1	1.7
Portugal	n	0.1	0.1	0.3	0.2	0.2	0.3	0.1	n	0.2	7.0	0.5	0.2	0.9	0.1	0.2	1.1	0.3
Slovak Republic	n	0.1	n	0.1	0.6	0.9	0.1	0.1	n	a	0.1	0.1	0.2	0.3	0.1	3.0	67.4	0.2
Spain	0.1	0.3	0.2	2.8	2.0	3.0	2.1	0.5	0.1	0.3	a	4.1	0.7	1.8	0.6	1.0	0.1	1.2
Sweden	0.4	n	0.1	8.9	0.3	6.6	0.6	0.2	0.4	1.8	0.2	a	0.2	1.0	0.5	0.4	0.4	5.7
Switzerland	0.1	0.2	0.4	1.3	1.0	0.5	0.2	0.1	0.2	0.1	0.6	0.9	a	0.5	0.2	0.8	0.0	0.3
Turkey	0.1	0.3	0.5	0.4	3.5	n	0.2	0.3	0.1	0.2	0.1	0.6	0.7	0.6	2.0	5.2	0.2	0.8
United Kingdom	0.8	0.1	0.9	11.7	1.0	3.5	13.6	0.4	1.3	1.4	1.4	1.3	0.3	a	1.4	0.5	1.7	1.9
United States	1.4	0.4	11.6	4.8	1.7	7.8	14.9	0.2	7.0	1.2	1.1	2.1	0.7	4.5	a	0.8	0.6	2.1
Total from OECD countries	***13.0***	***52.6***	***26.7***	***79.6***	***34.4***	***77.2***	***52.6***	***24.8***	***28.2***	***56.1***	***29.1***	***44.7***	***27.8***	***40.2***	***35.2***	***67.9***	***76.3***	***29.8***
Partner countries																		
Brazil	0.2	0.1	0.6	0.3	0.9	0.7	0.1	0.1	0.2	0.1	2.3	0.1	0.5	0.4	1.2	0.2	n	0.4
Chile	0.1	0.1	0.2	0.1	0.3	n	n	n	0.2	0.1	0.4	0.2	0.1	0.1	0.3	n	n	0.2
China	23.8	2.1	17.9	7.0	11.5	2.6	7.7	3.2	41.0	1.0	0.3	1.2	0.9	14.1	16.6	3.2	0.2	16.7
Estonia	n	n	n	0.3	0.3	0.9	0.1	n	n	n	0.1	0.1	n	0.2	n	0.1	n	6.6
India	11.6	0.8	2.6	1.3	1.7	0.1	2.1	0.1	7.4	0.2	0.1	0.2	0.5	6.8	14.4	0.4	0.4	2.0
Israel	0.1	0.1	0.4	0.3	0.6	n	0.1	0.1	n	7.7	0.1	n	0.1	0.3	0.6	0.1	0.8	0.2
Russian Federation	0.3	0.5	0.7	0.6	5.8	3.0	0.4	0.3	0.8	1.1	0.4	0.3	0.8	0.7	0.8	1.2	4.4	11.7
Slovenia	n	n	n	n	0.1	0.1	n	n	n	0.3	0.1	0.2	n	0.1	n	1.3	0.1	0.1
Main geographic regions																		
Total from Africa	***3.2***	***2.7***	***16.0***	***2.1***	***8.6***	***1.3***	***4.6***	***1.3***	***0.8***	***3.0***	***7.3***	***0.5***	***3.3***	***9.5***	***6.1***	***1.4***	***1.7***	***13.9***
Total from Asia	***79.7***	***5.6***	***42.4***	***13.2***	***31.2***	***7.0***	***28.1***	***5.9***	***68.6***	***19.6***	***1.7***	***4.5***	***4.2***	***46.3***	***65.2***	***14.1***	***9.3***	***31.4***
Total from Europe	***4.7***	***52.7***	***15.1***	***73.1***	***45.8***	***78.5***	***36.1***	***25.6***	***9.3***	***74.6***	***26.6***	***39.6***	***29.5***	***32.6***	***11.9***	***82.2***	***86.5***	***48.1***
of which, from EU19 countries	***3.4***	***51.0***	***10.7***	***45.6***	***23.7***	***60.6***	***32.4***	***23.5***	***7.6***	***45.6***	***20.5***	***35.9***	***25.0***	***28.1***	***8.1***	***59.1***	***74.1***	***2 2.4***
Total from North America	***3.3***	***0.6***	***12.1***	***5.8***	***2.0***	***10.1***	***18.0***	***0.3***	***8.3***	***1.5***	***1.1***	***3.4***	***1.1***	***6.0***	***4.9***	***1.0***	***0.8***	***3.0***
Total from Oceania	***1.9***	***0.1***	***0.4***	***3.1***	***0.3***	***0.9***	***0.6***	***n***	***12.0***	***n***	***n***	***1.6***	***0.2***	***0.7***	***0.7***	***0.2***	***n***	***0.4***
Total from South America	***1.1***	***0.9***	***8.8***	***1.7***	***4.0***	***2.2***	***0.6***	***0.9***	***1.0***	***1.3***	***29.2***	***1.1***	***2.4***	***2.5***	***11.1***	***1.1***	***0.7***	***2.5***
Not specified	***6.0***	***37.3***	***5.3***	***1.1***	***8.1***	***n***	***12.0***	***66.0***	***0.1***	***n***	***34.0***	***49.2***	***59.3***	***2.4***	***n***	***0.2***	***0.9***	***0.7***
Total from all countries	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

1. International students are defined on the basis of their country of residence.
2. Excludes data for social advancement education.
3. Excludes tertiary-type B programmes.
4. Year of reference 2006.
5. Excludes private institutions.
6. International students are defined on the basis of their country of prior education.
7. Excludes advanced research programmes.
8. Foreign students are defined on the basis of their country of citizenship; these data are not comparable with data on international students and are therefore presented separately in the table.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C2.2. *(continued)*

Distribution of international and foreign students in tertiary education, by country of origin (2007)

Number of international and foreign students enrolled in tertiary education from a given country of origin as a percentage of all international or foreign students in the country of destination, based on head counts.

The table shows for each country the proportion of international students in tertiary education who are residents of or had their prior education in a given country of origin. When data on student mobility are not available, the table shows the proportion of foreign students in tertiary education that have citizenship of a given country of origin.

Reading the third column: 0.7% of international tertiary students in Canada are German residents, 0.2% of international tertiary students in Canada are Greek residents, etc.

Reading the seventh column: 4.6% of international tertiary students in Ireland had their prior education in Germany, 0.3% of international tertiary students in Ireland had their prior education in Greece, etc.

Reading the 16th column: 28.4% of foreign tertiary students in Austria are German citizens, 0.6% of foreign tertiary students in Austria are Greek citizens, etc.

	Countries of destination																
	OECD countries											Partner countries					
	Foreign students										Total OECD destinations	International		Foreign		Total partner country destinations	Total all reporting destinations
Countries of origin	France[8]	Greece[8]	Hungary[8]	Italy[8]	Japan[8]	Korea[8]	Norway[8]	Poland[8]	Portugal[8]	Turkey[8]		Estonia[1]	Slovenia[1]	Chile[1]	Russian Federation[5,7,8]		
	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
OECD countries																	
Australia	0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.1	0.1	0.2	0.4	n	n	n	m	n	0.3
Austria	0.2	0.2	0.5	0.4	n	n	0.3	0.3	0.1	0.2	0.4	0.1	1.1	0.1	m	0.1	0.4
Belgium	1.1	0.2	0.1	0.5	n	n	0.2	0.1	0.4	0.1	0.4	0.3	0.3	0.1	m	n	0.4
Canada	0.5	0.2	0.9	0.2	0.2	0.6	0.6	2.4	0.5	0.1	1.8	n	0.3	0.2	m	0.2	1.6
Czech Republic	0.3	n	0.1	0.3	n	n	0.3	2.9	0.2	n	0.3	n	0.1	0.1	m	n	0.3
Denmark	0.1	0.1	n	0.1	n	n	5.4	0.1	n	n	0.2	0.7	0.1	n	m	n	0.2
Finland	0.1	0.1	0.2	0.2	0.1	n	1.9	0.1	0.1	n	0.2	45.7	n	0.1	m	0.2	0.2
France	a	0.3	0.3	1.9	0.4	0.1	1.1	0.8	3.6	0.1	2.2	0.4	0.2	0.7	m	0.1	1.9
Germany	2.8	1.9	10.1	3.6	0.3	0.2	4.2	3.1	1.7	1.4	3.2	1.4	0.3	0.7	m	0.2	2.7
Greece	0.8	a	1.0	8.8	n	n	0.1	0.2	0.2	4.6	1.3	0.2	0.1	n	m	0.6	1.2
Hungary	0.3	0.1	a	0.4	0.1	n	0.2	0.5	0.1	n	0.3	0.1	0.9	n	m	n	0.2
Iceland	n	n	0.3	n	n	n	1.6	n	n	n	0.1	n	n	n	m	n	0.1
Ireland	0.2	n	0.5	0.1	n	n	0.1	0.1	0.1	0.1	0.8	0.1	n	n	m	n	0.7
Italy	1.9	0.4	0.2	a	0.1	n	0.6	0.4	1.3	0.1	1.3	0.6	10.3	0.3	m	0.1	1.1
Japan	0.8	0.1	0.2	0.6	a	3.9	0.4	0.2	0.1	n	2.3	0.3	n	0.1	m	0.1	1.9
Korea	1.0	0.1	0.2	0.6	17.6	a	0.2	0.3	n	0.2	4.4	0.1	n	0.5	m	0.3	3.7
Luxembourg	0.6	n	n	0.1	n	n	n	n	0.2	n	0.3	n	n	n	m	n	0.3
Mexico	0.7	n	0.1	0.5	0.1	n	0.3	0.1	0.1	n	1.0	0.1	0.2	1.5	m	0.3	0.9
Netherlands	0.3	0.1	0.1	0.2	0.1	n	1.0	0.1	0.3	0.1	0.4	0.1	0.1	0.1	m	n	0.4
New Zealand	n	n	n	n	0.1	0.1	0.1	0.1	n	n	0.2	n	n	n	m	n	0.1
Norway	0.1	n	4.7	0.3	n	n	a	7.0	0.1	n	0.5	0.2	0.2	0.1	m	n	0.4
Poland	1.4	0.5	0.4	2.6	0.1	n	1.2	a	0.9	0.1	1.4	0.1	0.5	n	m	0.1	1.2
Portugal	1.1	0.1	0.1	0.2	n	n	0.3	0.3	a	n	0.4	0.1	0.2	n	m	0.1	0.4
Slovak Republic	0.2	n	15.2	0.3	n	n	0.2	1.1	0.1	n	1.0	n	0.6	n	m	n	0.9
Spain	1.6	0.1	0.2	0.9	0.1	n	0.7	0.5	3.6	n	1.0	0.8	0.2	0.8	m	0.1	0.8
Sweden	0.2	0.1	1.8	0.2	0.1	n	8.1	4.0	0.1	0.1	0.6	0.7	0.3	0.2	m	0.1	0.5
Switzerland	0.7	0.1	0.1	2.4	n	n	0.3	0.1	0.5	n	0.4	2.9	n	0.2	m	0.1	0.4
Turkey	0.9	0.4	0.6	0.7	0.1	0.2	0.4	0.5	0.2	a	1.2	0.2	0.1	n	m	2.3	1.4
United Kingdom	1.1	0.5	0.5	0.5	0.3	0.1	2.2	0.6	0.5	0.5	1.0	0.2	0.2	0.1	m	0.2	0.9
United States	1.3	0.6	1.6	0.8	1.5	1.7	2.1	6.3	0.8	0.2	2.0	1.2	0.3	0.8	m	0.8	1.8
Total from OECD countries	***20.4***	***6.1***	***40.1***	***27.4***	***21.7***	***7.3***	***34.1***	***32.2***	***15.9***	***7.9***	***31.2***	***56.8***	***16.2***	***6.8***	***m***	***6.2***	***27.1***
Partner countries																	
Brazil	1.0	n	0.1	1.9	0.4	0.1	0.5	0.3	12.3	n	0.8	0.1	0.3	2.3	m	0.5	0.8
Chile	0.3	n	n	0.4	n	n	0.5	n	0.1	n	0.2	n	n	a	m	0.4	0.2
China	7.6	0.2	1.3	2.9	63.7	72.3	4.6	3.2	0.4	0.7	16.3	9.5	0.1	0.6	m	9.8	15.2
Estonia	n	n	n	0.1	n	n	0.5	0.1	n	n	0.1	a	0.2	n	0.9	0.3	0.1
India	0.4	n	0.3	1.0	0.3	1.1	1.0	2.1	0.2	n	6.2	1.7	0.1	n	m	1.8	5.5
Israel	0.1	0.4	5.0	2.0	n	n	0.1	0.2	n	0.1	0.4	n	n	0.1	m	0.8	0.5
Russian Federation	1.3	1.4	1.4	1.6	0.3	0.8	5.1	3.7	0.5	2.9	1.4	9.6	1.2	0.1	a	2.9	1.6
Slovenia	n	n	0.1	0.7	n	n	n	0.1	0.1	n	0.1	n	a	n	m	n	0.1
Main geographic regions																	
Total from Africa	***43.8***	***4.3***	***1.9***	***9.6***	***0.7***	***0.8***	***9.7***	***4.8***	***64.8***	***2.0***	***10.5***	***0.3***	***0.3***	***0.1***	***m***	***17.3***	***11.6***
Total from Asia	***19.7***	***61.8***	***15.5***	***13.9***	***93.6***	***94.6***	***16.3***	***18.7***	***1.7***	***55.2***	***46.8***	***13.1***	***0.9***	***1.5***	***57.3***	***55.1***	***48.2***
Total from Europe	***21.6***	***32.0***	***79.7***	***62.4***	***2.5***	***1.6***	***43.1***	***66.9***	***16.5***	***27.6***	***24.9***	***84.9***	***96.7***	***3.9***	***31.9***	***15.7***	***23.3***
of which, from EU19 countries	***14.1***	***4.6***	***31.3***	***21.2***	***1.7***	***0.7***	***28.1***	***15.1***	***13.7***	***7.3***	***16.9***	***51.8***	***15.2***	***3.3***	***m***	***m***	***m***
Total from North America	***1.8***	***0.8***	***2.5***	***1.1***	***1.7***	***2.3***	***2.6***	***8.7***	***1.2***	***0.2***	***3.8***	***1.2***	***0.5***	***1.1***	***m***	***1.0***	***3.4***
Total from Oceania	***0.2***	***0.1***	***0.1***	***0.1***	***0.4***	***0.2***	***0.3***	***0.2***	***0.1***	***0.2***	***0.8***	***n***	***0.1***	***n***	***m***	***0.1***	***0.7***
Total from South America	***4.8***	***0.3***	***0.3***	***9.1***	***1.0***	***0.5***	***2.5***	***0.7***	***15.7***	***0.1***	***5.4***	***0.4***	***1.0***	***54.5***	***m***	***10.7***	***6.3***
Not specified	***8.1***	***0.8***	***n***	***3.8***	***n***	***n***	***25.5***	***n***	***n***	***14.7***	***7.8***	***n***	***0.4***	***38.8***	***10.8***	***n***	***6.5***
Total from all countries	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***	***100.0***

1. International students are defined on the basis of their country of residence.
2. Excludes data for social advancement education.
3. Excludes tertiary-type B programmes.
4. Year of reference 2006.
5. Excludes private institutions.
6. International students are defined on the basis of their country of prior education.
7. Excludes advanced research programmes.
8. Foreign students are defined on the basis of their country of citizenship; these data are not comparable with data on international students and are therefore presented separately in the table.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664653153762

C2

Table C2.3.

Citizens studying abroad in tertiary education, by country of destination (2007)

Number of students enrolled in tertiary education in a given country of destination as a percentage of all students enrolled abroad, based on head counts

The table shows for each country the proportion of students studying abroad in tertiary education in a given country of destination.

Reading the second column: 6.7% of Czech citizens enrolled in tertiary education abroad study in Austria, 15.0% of Italian citizens enrolled in tertiary education abroad study in Austria, etc.

Reading the first row: 2.9% of Australian citizens enrolled in tertiary education abroad study in France, 27.5% of Australian citizens enrolled in tertiary education abroad study in New Zealand, etc.

		Countries of destination																			
		OECD countries																			
	Country of origin	Australia[1]	Austria[2]	Belgium[3]	Canada[2,4,5]	Czech Republic	Denmark	Finland	France	Germany[6]	Greece	Hungary	Iceland	Ireland[7,8]	Italy	Japan	Korea	Luxembourg	Mexico	Netherlands[6]	New Zealand
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
OECD countries	Australia	a	0.7	0.3	4.0	n	0.4	0.3	2.9	3.5	0.2	0.1	0.1	0.7	0.6	3.6	0.4	m	m	0.5	27.5
	Austria	1.6	a	0.4	1.0	0.1	0.3	0.3	3.3	51.0	0.3	0.6	0.2	0.5	1.6	0.3	0.1	m	m	1.6	0.2
	Belgium	0.7	0.8	a	2.3	0.1	0.2	0.2	23.4	8.9	0.4	0.1	0.1	0.8	2.5	0.5	n	m	m	18.9	0.1
	Canada	9.1	0.1	0.2	a	0.1	0.2	0.2	2.9	1.4	0.1	0.3	n	1.1	0.3	0.7	0.4	m	m	0.3	0.9
	Czech Republic	1.3	6.7	0.5	1.7	a	0.5	0.6	9.3	27.2	n	0.2	0.2	0.4	2.2	0.5	0.1	m	m	1.6	n
	Denmark	2.3	1.1	0.6	1.6	n	a	0.7	3.8	8.2	0.2	n	0.8	0.4	0.9	0.5	0.1	m	m	2.3	0.9
	Finland	0.8	1.9	0.5	0.9	0.1	2.2	a	3.5	9.1	0.2	0.3	0.4	0.8	1.0	0.7	0.1	m	m	2.0	0.3
	France	1.4	0.8	26.6	7.8	n	0.4	0.3	a	10.0	0.1	0.1	0.1	1.4	1.7	0.7	n	m	m	1.3	0.6
	Germany	2.2	14.4	0.7	1.3	0.3	1.5	0.5	8.1	a	0.5	1.8	0.1	0.9	2.4	0.5	0.1	m	m	16.3	1.5
	Greece	0.1	0.6	1.1	0.4	0.3	0.2	0.1	5.1	16.0	a	0.4	n	0.1	13.3	0.1	n	m	m	1.6	n
	Hungary	0.7	15.0	1.3	1.3	0.4	1.3	1.3	8.7	30.9	0.2	a	0.1	0.3	2.5	1.0	n	m	m	3.0	0.1
	Iceland	0.8	0.5	0.2	1.2	n	46.4	0.7	1.3	3.0	n	1.3	a	0.2	0.5	0.6	n	m	m	2.1	0.3
	Ireland	0.9	0.2	0.3	1.2	0.3	0.3	0.2	2.3	2.1	n	0.4	n	a	0.2	n	n	m	m	0.7	0.2
	Italy	0.7	15.0	4.1	0.7	0.1	0.4	0.4	11.6	18.0	0.2	0.1	0.1	0.7	a	0.3	n	m	m	1.4	0.1
	Japan	5.8	0.5	0.3	2.9	n	0.1	0.2	3.7	4.3	n	n	n	0.2	0.6	a	2.2	m	m	0.4	1.7
	Korea	5.1	0.3	0.1	0.7	n	n	n	2.3	4.9	n	n	n	n	0.3	20.6	a	m	m	0.3	n
	Luxembourg	0.2	6.3	20.6	0.4	n	0.1	0.1	21.0	32.6	n	n	n	0.2	0.7	n	n	a	m	0.6	n
	Mexico	1.6	0.2	0.3	5.2	n	0.3	0.2	5.9	5.1	n	n	n	0.1	0.9	0.5	0.1	m	a	0.6	0.3
	Netherlands	2.0	1.1	26.1	2.4	0.1	1.5	0.6	4.7	11.7	0.2	0.1	0.1	0.7	0.9	0.6	n	m	m	a	0.4
	New Zealand	49.0	0.2	n	3.3	0.1	0.6	0.1	1.6	1.7	n	0.1	n	0.2	n	2.0	0.8	m	m	0.5	a
	Norway	10.8	0.4	0.2	1.3	1.7	16.4	0.6	2.7	4.3	n	5.2	0.2	0.8	1.1	0.2	n	m	m	2.2	1.2
	Poland	0.5	3.9	1.2	1.6	0.7	1.8	0.4	8.9	40.2	0.3	0.2	0.1	0.7	3.9	0.2	n	m	m	2.2	n
	Portugal	0.4	0.6	5.1	1.7	1.9	0.3	0.2	18.4	10.7	0.1	0.1	n	0.3	0.8	0.2	n	m	m	1.9	0.1
	Slovak Republic	0.4	5.2	0.3	0.4	66.4	0.1	0.1	1.5	6.5	n	9.2	n	0.1	0.7	0.1	n	m	m	0.5	n
	Spain	0.5	1.6	3.4	0.6	0.1	0.5	0.4	14.4	18.6	0.1	0.1	0.1	1.3	1.9	0.4	n	m	m	3.1	0.1
	Sweden	6.0	1.2	0.4	1.2	0.6	10.8	3.9	3.7	4.8	0.2	1.8	0.3	0.7	0.8	0.9	n	m	m	1.2	0.9
	Switzerland	2.8	3.2	0.8	2.9	0.1	0.6	0.2	14.5	20.4	0.2	0.1	n	0.3	12.4	0.4	n	m	m	1.4	0.5
	Turkey	0.4	3.8	0.4	1.2	0.1	0.5	0.1	4.0	41.6	0.1	0.2	n	0.1	0.6	0.3	0.1	m	m	1.2	n
	United Kingdom	6.5	0.8	1.0	8.3	1.5	1.8	0.7	9.9	7.1	0.4	0.3	0.1	8.7	1.1	1.5	0.1	m	m	3.1	1.6
	United States	5.8	0.7	0.4	17.5	0.3	0.6	0.4	6.1	6.5	0.3	0.5	0.1	4.8	0.9	3.6	1.1	m	m	0.9	4.5
	Total from OECD countries	*3.2*	*3.4*	*3.3*	*3.0*	*2.2*	*1.2*	*0.3*	*5.8*	*12.2*	*0.2*	*0.7*	*0.1*	*1.0*	*1.8*	*3.2*	*0.3*	*m*	*m*	*2.9*	*1.1*
Partner countries	Brazil	2.1	0.3	0.6	2.8	n	0.4	0.2	10.7	8.7	n	n	n	0.1	4.5	1.9	0.1	m	m	0.5	0.3
	Chile	2.5	0.2	1.2	3.1	n	0.4	0.2	8.2	7.7	n	n	n	n	2.6	0.5	0.2	m	m	0.5	0.8
	China	11.0	0.3	0.3	6.3	n	0.4	0.4	4.1	5.9	n	n	n	0.3	0.4	17.5	5.1	m	m	0.8	3.0
	Estonia	0.1	0.9	0.3	0.4	0.1	3.2	13.8	2.5	15.4	0.1	0.1	0.2	0.4	1.2	0.5	n	m	m	1.6	n
	India	15.1	0.1	0.2	4.4	n	0.2	0.1	0.5	2.4	n	n	n	0.2	0.4	0.3	0.2	m	m	0.2	1.5
	Israel	1.4	0.4	0.3	6.8	1.3	0.4	0.2	2.0	9.5	0.6	5.4	n	0.1	8.0	0.3	n	m	m	1.4	n
	Russian Federation	1.0	1.0	1.0	2.7	2.1	0.8	2.3	6.3	25.3	0.6	0.4	n	0.1	1.8	0.7	0.5	m	m	0.9	0.5
	Slovenia	0.7	20.4	0.7	0.7	0.7	0.3	0.5	3.2	22.0	n	0.7	n	0.2	14.2	0.4	n	m	m	2.7	n

Note: The proportion of students abroad is based only on the total of students enrolled in countries reporting data to the OECD and UNESCO Institute for Statistics.

1. Data by country of origin relate to international students defined on the basis of their country of residence.
2. Excludes tertiary-type B programmes.
3. Excludes data for social advancement education.
4. Reference year 2006.
5. Excludes private institutions.
6. Excludes advanced research programmes.
7. Data by country of origin relate to international students defined on the basis of their country of prior education.
8. Excludes part-time students.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C2.3. *(continued)*

Citizens studying abroad in tertiary education, by country of destination (2007)

Number of students enrolled in tertiary education in a given country of destination as a percentage of all students enrolled abroad, based on head counts

The table shows for each country the proportion of students studying abroad in tertiary education in a given country of destination.
Reading the second column: 6.7% of Czech citizens enrolled in tertiary education abroad study in Austria, 15.0% of Italian citizens enrolled in tertiary education abroad study in Austria, etc.
Reading the first row: 2.9% of Australian citizens enrolled in tertiary education abroad study in France, 27.5% of Australian citizens enrolled in tertiary education abroad study in New Zealand, etc.

		Countries of destination																		
		OECD countries											Partner countries							
	Country of origin	Norway	Poland	Portugal	Slovak Republic	Spain	Sweden	Switzerland	Turkey	United Kingdom[1]	United States[1]	Total OECD destinations	Brazil	Chile	Estonia	Israel	Russian Federation[5,6]	Slovenia	Total partner country destinations	Total all reporting destinations
		(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)
OECD countries	**Australia**	0.3	0.1	0.2	n	0.4	3.9	0.7	0.3	17.7	28.6	98.0	m	n	n	m	m	n	2.0	100.0
	Austria	0.4	0.3	0.2	0.2	1.9	3.9	7.5	0.2	11.1	6.7	95.8	m	n	n	m	m	0.1	4.2	100.0
	Belgium	0.2	0.2	0.7	n	3.0	2.5	2.9	0.1	22.5	6.3	98.4	m	0.1	n	m	m	n	1.6	100.0
	Canada	0.2	0.7	0.2	n	0.2	0.9	0.7	n	11.3	65.1	97.9	m	n	n	m	m	n	2.1	100.0
	Czech Republic	0.6	4.7	0.3	6.0	1.6	2.9	2.1	n	14.2	11.5	97.1	m	0.1	n	m	m	n	2.9	100.0
	Denmark	13.5	0.2	0.1	n	1.8	15.4	1.5	0.1	25.3	15.9	98.0	m	n	0.1	m	m	n	2.0	100.0
	Finland	3.1	0.1	0.2	n	0.9	37.8	1.3	n	17.8	6.1	91.8	m	n	4.9	m	m	n	8.2	100.0
	France	0.3	0.2	1.0	n	3.0	2.7	6.9	n	20.7	10.9	99.0	m	0.1	n	m	m	n	1.0	100.0
	Germany	0.8	0.5	0.4	n	2.2	3.8	11.4	0.3	16.3	10.3	98.7	m	0.1	n	m	m	n	1.3	100.0
	Greece	0.1	0.1	0.1	0.5	0.5	0.8	0.8	2.3	42.2	5.3	92.2	m	n	n	m	m	n	7.8	100.0
	Hungary	0.5	0.7	0.2	0.4	0.8	2.0	2.4	n	12.8	9.2	97.3	m	n	n	m	m	0.2	2.7	100.0
	Iceland	6.7	0.1	n	0.1	0.8	10.9	0.3	n	10.3	11.5	99.9	m	n	n	m	m	n	0.1	100.0
	Ireland	0.1	0.1	0.1	0.1	0.6	0.9	0.2	0.1	82.9	5.6	99.9	m	n	n	m	m	n	0.1	100.0
	Italy	0.2	0.1	0.6	n	7.8	2.0	11.1	n	14.5	8.3	98.4	m	0.1	n	m	m	0.3	1.6	100.0
	Japan	0.1	0.1	n	n	0.3	0.5	0.5	n	10.2	64.3	98.9	m	n	n	m	m	n	1.1	100.0
	Korea	n	n	n	n	0.1	0.2	0.2	n	4.0	59.5	98.7	m	n	n	m	m	n	1.3	100.0
	Luxembourg	n	n	0.4	n	0.2	0.1	4.0	n	11.7	0.8	99.9	m	n	n	m	m	n	0.1	100.0
	Mexico	0.1	n	0.1	n	13.7	0.8	0.6	n	6.0	51.2	93.9	m	0.4	n	m	m	n	6.1	100.0
	Netherlands	1.2	0.1	0.5	n	2.0	5.2	2.6	0.1	21.2	12.2	98.4	m	0.1	n	m	m	n	1.6	100.0
	New Zealand	0.3	0.2	n	n	0.4	1.3	0.6	n	14.1	21.7	98.9	m	n	n	m	m	n	1.1	100.0
	Norway	a	6.6	0.1	1.1	0.6	9.6	0.7	n	22.0	8.9	98.9	m	n	n	m	m	n	1.1	100.0
	Poland	0.5	a	0.4	0.1	2.0	2.4	1.3	n	17.7	7.5	98.7	m	n	n	m	m	n	1.3	100.0
	Portugal	0.3	0.3	a	n	19.2	1.5	7.0	n	20.8	6.0	97.9	m	n	n	m	m	n	2.1	100.0
	Slovak Republic	0.1	0.6	0.1	a	0.4	0.2	0.7	n	3.6	2.4	99.7	m	n	n	m	m	n	0.3	100.0
	Spain	0.4	0.2	2.4	n	a	4.5	5.6	n	23.7	13.7	98.0	m	0.2	n	m	m	n	2.0	100.0
	Sweden	8.6	3.5	0.2	0.2	1.4	a	1.6	0.1	23.0	20.3	98.3	m	0.1	0.1	m	m	n	1.7	100.0
	Switzerland	0.4	0.1	0.8	n	3.2	2.5	a	0.1	17.2	11.5	96.8	m	0.1	n	m	m	n	3.2	100.0
	Turkey	0.1	0.1	n	n	0.1	0.6	1.4	a	3.8	19.9	80.7	m	n	n	m	m	n	19.3	100.0
	United Kingdom	1.3	0.3	0.3	0.1	2.5	3.0	1.4	0.4	a	33.0	97.0	m	n	n	m	m	n	3.0	100.0
	United States	0.6	1.6	0.3	n	1.4	1.8	0.9	0.1	30.6	a	92.2	m	0.1	n	m	m	n	7.8	100.0
	Total from OECD countries	***0.6***	***0.5***	***0.3***	***0.1***	***2.2***	***2.4***	***3.2***	***0.2***	***16.5***	***24.4***	***96.4***	***m***	***0.1***	***0.1***	***m***	***m***	***n***	***3.6***	***100.0***
Partner countries	**Brazil**	0.3	0.1	9.1	n	8.7	0.5	1.4	n	5.4	30.2	89.1	a	0.7	n	m	m	n	10.9	100.0
	Chile	1.0	n	0.1	n	18.5	3.2	1.3	n	4.8	20.2	77.3	m	a	n	m	m	n	22.7	100.0
	China	0.2	0.1	n	n	0.2	0.4	0.2	n	10.8	21.6	89.3	m	n	n	m	m	n	10.7	100.0
	Estonia	1.5	0.4	n	n	2.2	5.4	0.4	n	11.1	5.1	67.1	m	n	a	m	11.6	n	32.9	100.0
	India	0.1	0.2	n	n	0.1	0.5	0.2	n	14.7	52.8	94.5	m	n	n	m	m	n	5.5	100.0
	Israel	0.2	0.2	n	1.0	1.0	0.3	0.5	0.2	6.4	24.0	71.7	m	n	n	a	m	n	28.3	100.0
	Russian Federation	1.6	1.0	0.2	n	1.4	1.4	1.4	1.1	5.1	9.6	71.1	m	n	2.2	m	a	n	28.9	100.0
	Slovenia	0.2	0.4	0.7	0.2	1.9	2.1	1.6	n	10.4	7.5	92.5	m	n	n	m	m	a	7.5	100.0

Note: The proportion of students abroad is based only on the total of students enrolled in countries reporting data to the OECD and UNESCO Institute for Statistics.
1. Data by country of origin relate to international students defined on the basis of their country of residence.
2. Excludes tertiary-type B programmes.
3. Excludes data for social advancement education.
4. Reference year 2006.
5. Excludes private institutions.
6. Excludes advanced research programmes.
7. Data by country of origin relate to international students defined on the basis of their country of prior education.
8. Excludes part-time students.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
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Table C2.4.

Distribution of international and foreign students in tertiary education, by level and type of tertiary education (2007)

		Tertiary-type B programmes	Tertiary-type A programmes	Advanced research programmes	Total tertiary programmes
		(1)	(2)	(3)	(4)
	International students by level and type of tertiary education				
OECD countries	**Australia**[1]	12.4	83.5	4.1	100
	Austria[1, 2]	1.4	90.2	8.4	100
	Belgium[1, 3]	30.6	63.4	6.0	100
	Canada[1, 4, 5, 6]	m	88.6	11.4	100
	Czech Republic[1]	1.1	90.5	8.4	100
	Denmark[1]	9.4	88.1	2.5	100
	Finland[7]	n	86.6	13.4	100
	Hungary[1]	0.7	95.2	4.0	100
	Iceland[7]	0.6	96.5	2.9	100
	Ireland	m	m	m	m
	Japan[1]	21.3	68.1	10.6	100
	Luxembourg	m	m	m	m
	Mexico	m	m	m	m
	Netherlands[8]	n	100.0	m	100
	New Zealand[1]	25.3	69.9	4.9	100
	Norway[1]	0.3	94.1	5.6	100
	Slovak Republic[1]	0.5	94.7	4.7	100
	Spain[1]	34.0	43.8	22.3	100
	Sweden[1]	0.5	93.9	5.5	100
	Switzerland[4,7]	m	73.5	26.5	100
	United Kingdom[1]	9.1	79.0	11.9	100
	United States[1]	12.7	71.6	15.7	100
Partner countries	**Brazil**	m	m	m	m
	Estonia[1]	4.6	88.1	7.3	100
	Israel	m	m	m	m
	Slovenia[1]	16.6	76.1	7.4	100
	Foreign students by level and type of tertiary education				
OECD countries	**France**[9]	10.0	79.0	11.0	100
	Germany[8, 9]	4.8	95.2	m	100
	Greece[8, 9]	34.7	65.3	m	100
	Italy[9]	2.9	92.9	4.1	100
	Korea[9]	22.4	69.4	8.3	100
	Poland[9]	n	93.2	6.8	100
	Portugal[9]	1.1	88.8	10.0	100
	Turkey[9]	5.1	90.3	4.6	100
Partner countries	**Chile**[9]	29.6	65.3	5.1	100
	Russian Federation[6, 8, 9]	10.7	89.3	m	100

1. International students are defined on the basis of their country of residence.
2. Based on the number of registrations, not head-counts.
3. Excludes data for social advancement education.
4. Excludes tertiary-type B programmes.
5. Reference year 2006.
6. Excludes private institutions.
7. International students are defined on the basis of their country of prior education.
8. Excludes advanced research programmes.
9. Foreign students are defined on the basis of their country of citizenship, these data are not comparable with data on international students and are therefore presented separately in the table and chart.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C2.5.

Distribution of international and foreign students in tertiary education, by field of education (2007)

		Agriculture	Education	Engineering, manufacturing and construction	Health and welfare	Humanities and arts	Sciences	Services	Social sciences, business and law	Not known or unspecified	Total all fields of education
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	International students by field of education										
OECD countries	**Australia**[1]	0.8	3.0	10.5	8.6	7.1	12.8	1.6	55.6	n	100
	Austria[1, 2]	2.1	6.0	11.8	7.7	22.9	10.5	1.5	37.1	0.4	100
	Belgium[1, 3]	8.3	4.9	7.1	41.8	14.1	6.2	2.2	15.3	0.1	100
	Canada[1, 2, 4]	1.1	1.6	14.9	5.3	8.2	18.5	1.2	39.7	9.4	100
	Denmark[1]	2.1	4.1	13.5	19.6	17.9	7.1	0.7	35.0	n	100
	Finland[2, 5]	1.9	2.0	30.0	11.6	15.1	10.0	3.9	25.6	n	100
	Germany[2, 5, 6]	1.5	4.9	19.5	6.3	21.5	17.0	1.7	27.6	0.1	100
	Greece	m	m	m	m	m	m	m	m	m	m
	Hungary[1]	11.1	4.2	9.0	32.7	10.6	8.2	2.6	21.5	n	100
	Iceland[5]	1.1	5.2	6.0	2.9	42.9	18.0	1.3	22.5	n	100
	Ireland	m	m	m	m	m	m	m	m	m	m
	Japan[1]	2.4	2.5	14.6	2.3	25.4	1.2	2.0	39.7	9.9	100
	Korea	m	m	m	m	m	m	m	m	m	m
	Luxembourg	m	m	m	m	m	m	m	m	m	m
	Mexico	m	m	m	m	m	m	m	m	m	m
	Netherlands[6]	1.5	6.2	5.2	16.8	12.8	5.5	5.8	45.4	0.7	100
	New Zealand[1, 6]	1.2	3.3	7.2	6.3	14.6	18.2	2.8	45.7	0.6	100
	Norway[1]	1.3	5.3	4.7	10.4	16.9	15.0	3.6	33.6	9.3	100
	Spain[1, 2, 6]	1.2	2.9	6.8	34.7	12.7	7.0	3.3	31.3	n	100
	Sweden[1]	1.0	3.8	23.6	8.1	16.0	14.7	1.8	30.7	0.2	100
	Switzerland[2, 5]	0.9	3.6	16.0	7.1	17.4	16.7	2.1	34.2	2.2	100
	United Kingdom[1]	0.8	3.8	14.7	9.2	14.3	13.9	1.3	40.8	1.3	100
	United States[1]	0.3	3.0	15.6	6.5	11.0	18.7	1.8	31.0	12.0	100
Partner countries	**Brazil**	m	m	m	m	m	m	m	m	m	m
	Chile	m	m	m	m	m	m	m	m	m	m
	Estonia[1]	7.0	0.8	0.9	11.8	17.8	3.8	0.7	57.0	n	100
	Israel	m	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m	m
	Slovenia[1]	2.1	5.1	16.7	11.5	21.3	10.9	3.3	29.0	n	100
	Foreign students by field of education										
OECD countries	**Czech Republic**[7]	2.5	5.2	11.1	19.5	8.1	10.6	1.7	35.5	6.0	100
	France[7]	0.2	1.1	12.6	8.7	20.1	15.8	1.5	39.8	0.1	100
	Italy[7]	2.0	2.3	14.5	20.4	19.9	6.6	1.7	31.8	0.9	100
	Poland[7]	0.5	4.2	4.6	28.2	18.3	5.6	3.4	35.2	n	100
	Portugal[7]	1.0	3.6	18.3	7.3	8.5	7.3	5.0	49.1	n	100
	Slovak Republic[7]	11.6	5.1	12.4	33.0	14.6	6.3	4.5	12.4	a	100
	Turkey[7]	2.4	9.5	14.6	14.7	10.1	8.8	3.2	36.8	n	100

1. International students are defined on the basis of their country of residence.
2. Excludes tertiary-type B programmes.
3. Excludes data for social advancement education.
4. Reference year 2006.
5. International students are defined on the basis of their country of prior education.
6. Excludes advanced research programmes.
7. Foreign students are defined on the basis of their country of citizenship; these data are not comparable with data on international students and are therefore presented separately in the table and chart.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table C2.6.

Trends in the number of foreign students enrolled outside their country of origin (2000 to 2007)

Number of foreign students enrolled in tertiary education outside their country of origin, head counts

	Number of foreign students							
	2007	2006	2005	2004	2003	2002	2001	2000
Foreign students enrolled worldwide	3 021 106	2 924 679	2 846 423	2 697 283	2 507 551	2 267 148	1 978 507	1 901 188
Foreign students enrolled in OECD countries	2 522 757	2 440 657	2 368 931	2 265 135	2 085 263	1 897 866	1 642 676	1 583 744

	Index of change (2007)						
	2006=100	2005=100	2004=100	2003=100	2002=100	2001=100	2000=100
Foreign students enrolled worldwide	103	106	112	120	133	153	159
Foreign students enrolled in OECD countries	103	106	111	121	133	154	159

Note: Figures are based on the number of foreign students enrolled in OECD and partner countries reporting data to the OECD and UNESCO Institute for Statistics, in order to provide a global picture of foreign students worldwide. The coverage of these reporting countries has evolved over time, therefore missing data have been imputed wherever necessary to ensure the comparability of time series over time. Given the inclusion of UNESCO data for partner countries and the imputation of missing data, the estimates of the number of foreign students may differ from those published in previous editions of *Education at a Glance*.

Source: OECD and UNESCO Institute for Statistics for most data on non-OECD countries. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

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INDICATOR C3

HOW SUCCESSFUL ARE STUDENTS IN MOVING FROM EDUCATION TO WORK?

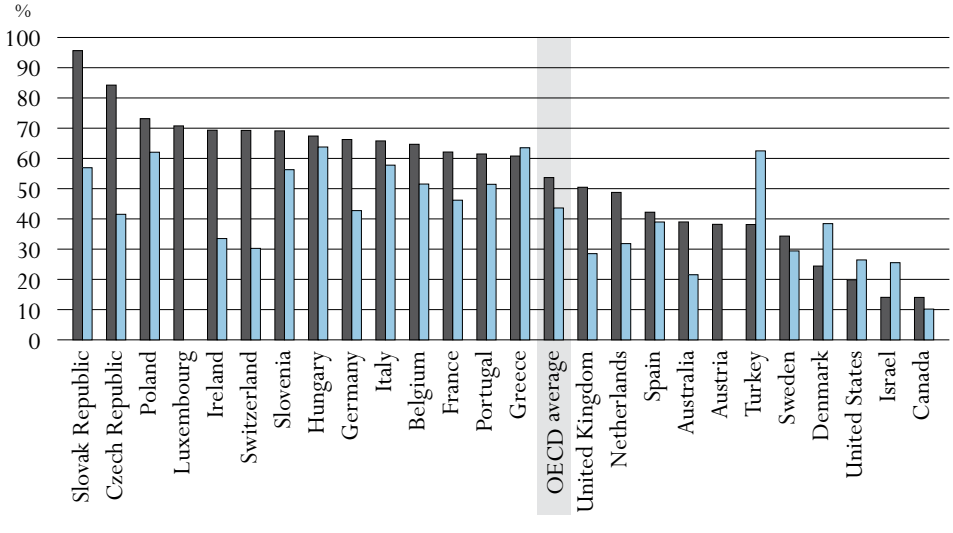
This indicator shows the number of years that young adults are expected to spend in education, employment and non-employment, and notes their status by gender. Once students have completed their initial education, they may face periods of unemployment, non-employment, or involuntary part-time work. The indicator also tracks the length of unemployment spells and the proportion of young adults in part-time work.

Key results

Chart C3.1. Proportion of long-term unemployed among unemployed 25-34 year-olds (2007)

This chart shows the proportion of unemployed tertiary and below upper secondary educated individuals with unemployment spells over 6 months.

In 2007 the proportion of long-term unemployed among young unemployed with below upper secondary education exceeded 50% in more than half of OECD countries. In nine countries (including partner countries) more than half of the unemployed with tertiary education were also unemployed for periods lasting longer than six months. While unemployment rates generally fall for those with higher levels of educational attainment, the benefit of education in finding a job once unemployed is less clear-cut. The proportion of unemployed tertiary educated individuals with long-term unemployment is above 60% in Greece, Hungary, Poland, and Turkey. In view of the employment outlook for OECD countries in the coming years, the long-term unemployment figures among young adults are likely to rise in most countries.



Countries are ranked in descending order of the proportion long-term unemployed among those with below upper secondary education.

Source: OECD. Table C3.5. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Other highlights of this indicator

- On average across OECD countries, a young person aged 15 in 2007 can expect to spend about 6.7 additional years in formal education. In addition, he or she can expect to hold a job for 6.2 of the subsequent 15 years, to be unemployed for a total of 0.7 years and to be out of the labour market (not employed, not in education and not looking for a job) for 1.3 years.

- The 15-19 year-old population that is not in education is generally associated with being unemployed or out of the labour force. However, some countries are better able than others to provide employment for young adults with relatively low educational attainment. In Denmark, Iceland, Ireland, and the Netherlands, 70% or more of individuals in this age group who are not in education are employed.

- On average, having completed upper secondary education reduces unemployment among 20-24 year-olds by 6.7 percentage points and that of 25-29 year-olds by 6.2 percentage points. The lack of an upper secondary qualification is clearly a serious impediment to finding employment. A tertiary qualification further increases the likelihood of finding employment.

- Because completing an upper secondary education has become the norm among OECD countries, young adults that have passed their teenage years are the most vulnerable group in an economic downturn. Over the past 10 years, the rates for not being in education nor in employment among 20-24 year-olds have varied substantially in most countries and in Greece, Hungary, Poland and the Slovak Republic, rates have varied by 10 percentage points or more over economic cycles (chart C3.4).

- Involuntary part-time work is generally more prevalent among young females than males. This difference between the genders generally decreases with higher levels of educational attainment. Among females with below upper secondary education in Austria, Belgium, France, the Netherlands, Norway, Spain, Sweden, Switzerland, the United Kingdom, the United States and the partner country Israel 10% or more hold a part-time job despite a preference for full-time employment.

Policy context

All OECD countries are experiencing rapid social and economic changes that make the transition to working life more uncertain for younger individuals. In some OECD countries, education and work are largely consecutive, while in others they may be concurrent. The ways in which education and work are combined can significantly affect the transition process.

The transition from education to work is a complex process that depends not only on the length and quality of the schooling received but also on a country's general labour market and economic conditions. High general unemployment rates make the transition substantially more difficult. Moreover, those entering the labour market for the first time typically experience higher unemployment rates than those with more work experience.

General labour market conditions also influence the schooling decisions of younger individuals: when labour markets are poor, younger individuals tend to increase enrolment in education and remain in education longer; the opposite applies when labour markets are good. Decisions to invest in education and stay on longer in school when the labour market is poor make sense. High unemployment rates drive down the opportunity costs of education. Moreover, by continuing education individuals decrease their risk of being stranded with outdated skills once the labour market picks up again.

National education systems thus play a crucial role in accommodating for increasing numbers of students in adverse economic times. When job prospects diminish, investments in education also make good sense from a public perspective. Opportunity costs such as foregone taxes decrease and as government may need to provide additional unemployment benefits or social transfers, opportunity costs can turn into opportunity benefits. In these circumstances, public investments in education can be a sensible way to counterbalance inactivity and to invest in future economic growth.

Evidence and explanations

On average, a person who is 15 years-old in 2007 can expect to remain in school for an additional 6.7 years (Table C3.1a). Some will continue longer than others. In Finland, Iceland, the Netherlands, Poland and the partner country Slovenia, a 15-year-old can expect to spend an additional eight years or more in education. By contrast, a 15-year-old in Ireland and Turkey can expect, on average, to spend five or fewer years in education.

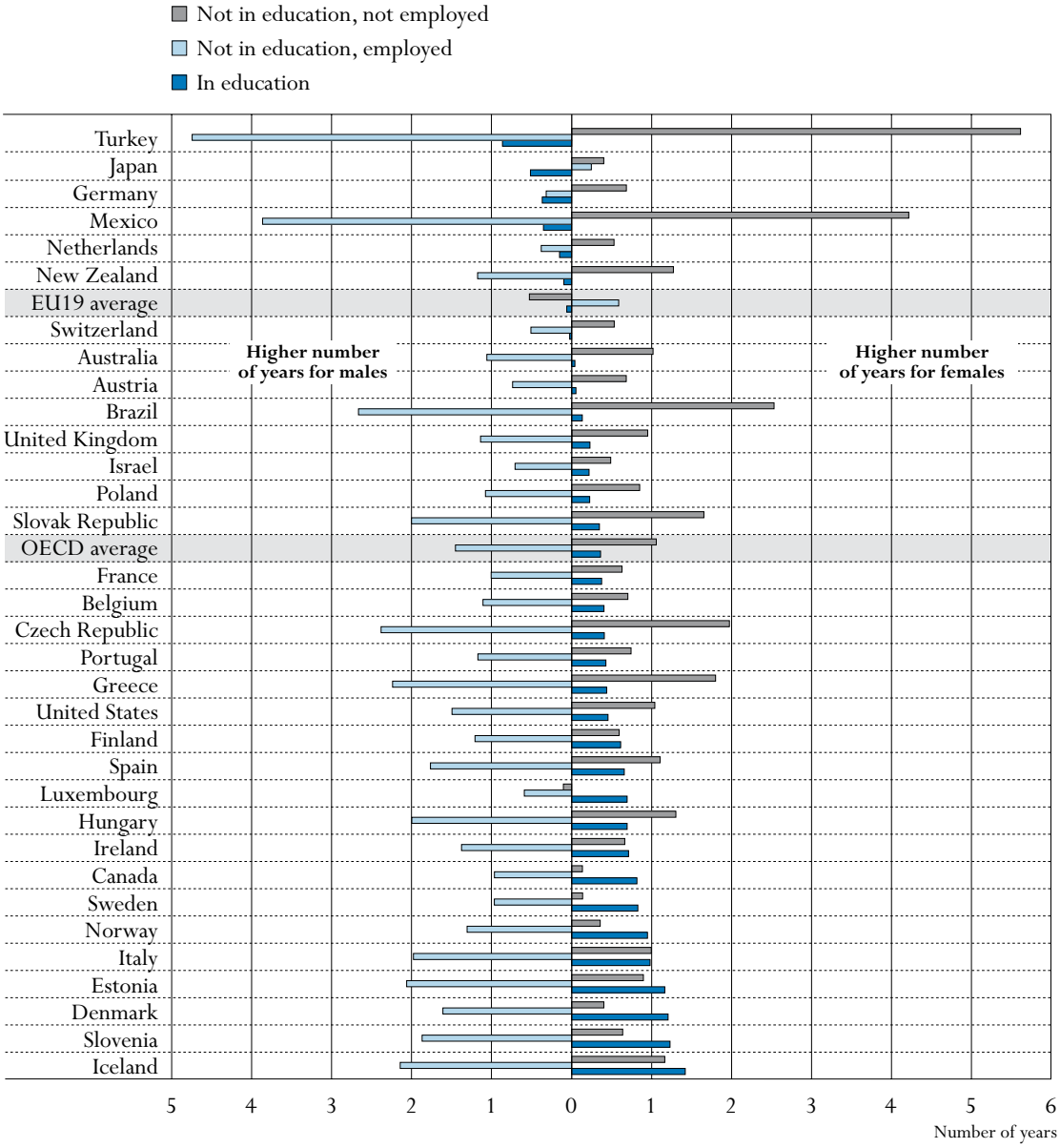
In addition to the average 6.7 years spent in education, a person aged 15 can expect to hold a job for 6.2 of the subsequent 15 years, to be unemployed for a total of 0.7 years and to be out of the labour market for 1.3 years – neither in education nor seeking work (Table C3.1a).

The average cumulative duration of unemployment varies significantly among countries, owing to differences in general unemployment rates as well as differences in the duration of education. The cumulative average duration of unemployment is less than six months in Australia, the Czech Republic, Denmark, Iceland, Japan, Mexico, the Netherlands, New Zealand, and Norway, but over a year in France, Greece, Poland, Portugal, the Slovak Republic and Turkey.

The average overall number of expected years in education is higher for females (6.9 years compared to 6.5 for males). In all countries except Germany, Japan, Mexico, the Netherlands, New Zealand, Switzerland and Turkey, females spend more years in education than males. In Turkey, female students can expect to spend nearly one year less in education than their male

counterparts; in Denmark, Iceland, Italy and the partner countries Estonia and Slovenia, the opposite applies (Chart C3.2). However, between the ages of 15 and 29, males are likely to have been in the labour market one and a half years longer than females. This reflects the fact that females are more likely to be outside the labour market when not in education (not in education, not employed and not looking for a job).

Chart C3.2. Gender difference in expected years in education and not in education for 15-29 year-olds (2007)



Countries are ranked in descending order of the difference between females and males in expected years in education of the 15-29 year-olds.

Source: OECD. Table C3.1a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664770480457

However, males and females differ very little in terms of the expected number of years they will spend in unemployment, although these periods tend to be marginally longer for males (0.8 for males, 0.7 for females). Females appear to have a particular advantage in Canada, Germany, Luxembourg, Turkey and the United Kingdom where they can expect to spend almost five months fewer in unemployment than their male counterparts (Table C3.1a).

Between the ages of 15 and 29, young males can expect to spend 1.5 years not in education and not employed, and young females can expect to spend 2.6 years not in education and not employed. In Mexico, Turkey and the partner countries Brazil and Israel, there is a much stronger tendency for young females to leave the labour market and to spend time out of the educational system and not working. In Canada, Denmark, Japan, the Netherlands, Norway, Sweden, Switzerland and the partner country Israel young males and young females differ with less than half a year in this measure.

Conversely, relative to males, females between the ages of 15 and 29 in all OECD countries can expect a shorter duration of employment after education; this is partly a consequence of the time spent in education, but is also attributable to other factors such as time spent in childrearing (Table C3.1a).

Unemployment and non-employment among young non-students

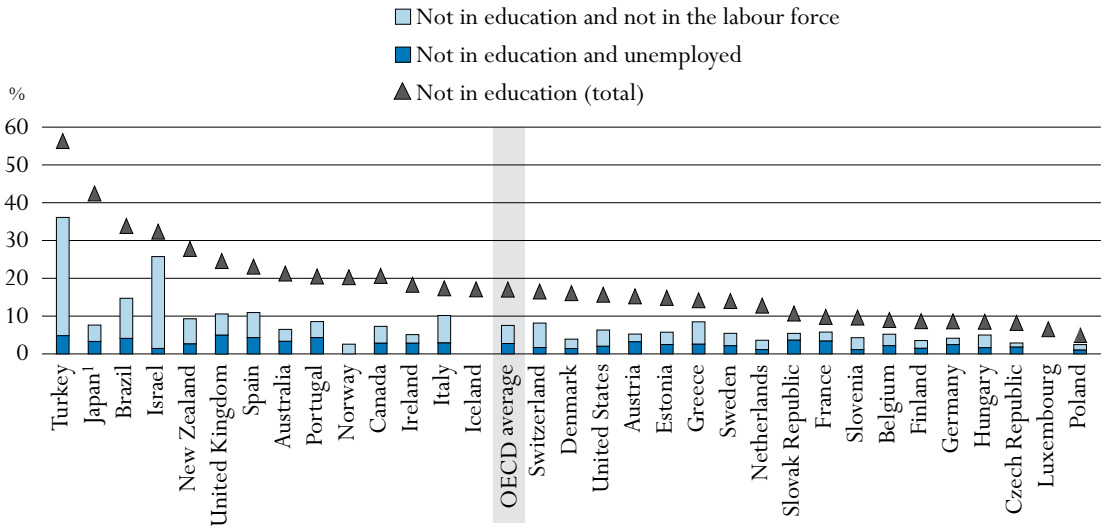
Young adults represent the principal source of labour with new skills. In most OECD countries, education policy seeks to encourage youth to complete at least upper secondary education. Since many jobs in the current labour market require ever-higher general skill levels, persons with low attainment are often penalised.

The majority of the 15-19 year-old population is still in education. The 15-19 year-old population that is not in education is generally associated with being unemployed or out of the labour force. The situation of the 15-19 year-old population not in education varies substantially, from 18% not in the labour force or unemployed in Japan to 82% in the partner country Israel. On average among OECD countries, close to half of the 15-19 year-old population not in education were not in the labour force or unemployed (Chart C3.3). It is worth noting that there was a slight improvement in 2007.

Some countries are better able than others to provide employment for young adults with relatively low levels of educational attainment (indicated by the difference between the bars and the triangles). In Denmark, Iceland, Ireland, Japan and the Netherlands, 70% or more of those not in education find employment. Low unemployment levels among the working age population in general (25-64 year-olds) typically contribute to a smoother transition from school to work for young adults with low levels of education.

The group of young adults aged 15-19 years old not currently engaged in employment, education or training (NEET) has attracted considerable attention in some countries. However, this group receives little or no support from the welfare system in most countries. The proportion of 15-19 year-olds not in education and not in the labour force ranges from over 31% in Turkey to 1.1% in the Czech Republic. On average across OECD countries, 4.8% of this cohort is not in education and not in the labour force (Table C3.2a).

Chart C3.3. Percentage of 15-19 year-olds not in education and unemployed or not in the labour force (2007)



Note: Missing bars refer to cells below reliability thresholds.
1. Japan refers to 15-24 year-olds.
Countries are ranked in descending order of the percentage of 15-19 year-olds not in education.
Source: OECD. Table C3.2a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664770480457

Unemployment rates among young non-students differ according to their level of educational attainment, indicating the degree to which further education improves their economic opportunities. On average, completing upper secondary education reduces the unemployment rate among 20-24 year-olds by 6.7 percentage points and among 25-29 year-olds by 6.2 percentage points (Table C3.3). Since it has become the norm in most OECD countries to complete upper secondary education, those who do not complete this level of education are much more likely to have difficulty finding employment when they enter the labour market. In Belgium, France, Poland and the Slovak Republic, the unemployment rate for 20-24 year-olds with less than upper secondary education attainment is 15% or more.

In 15 OECD countries and 3 partner countries, 5% or more of 25-29 year-old upper secondary graduates are not in education and are unemployed. In a few OECD countries, even young adults who have completed tertiary education are subject to considerable unemployment risk when they enter the labour market. In Greece, Italy, Portugal and Turkey more than 10% of 25-29 year-olds with tertiary education are unemployed. In these countries, plus Denmark, Spain, and the partner countries Israel and Slovenia, unemployment rates for upper secondary and post-secondary non-tertiary graduates are lower than for those with tertiary qualifications in this age cohort.

Among 20-24 year-olds with tertiary attainment, the ratio of unemployed non-students to the cohort population is 19% or more in Greece, Portugal and Turkey (Table C3.3). Countries with high unemployment rates among young tertiary educated individuals are also those with high unemployment rates for tertiary educated individuals in the general working age population (25-64 year-olds). Unemployment rates among young adults largely mirror those of the labour market in general (Indicator A6).

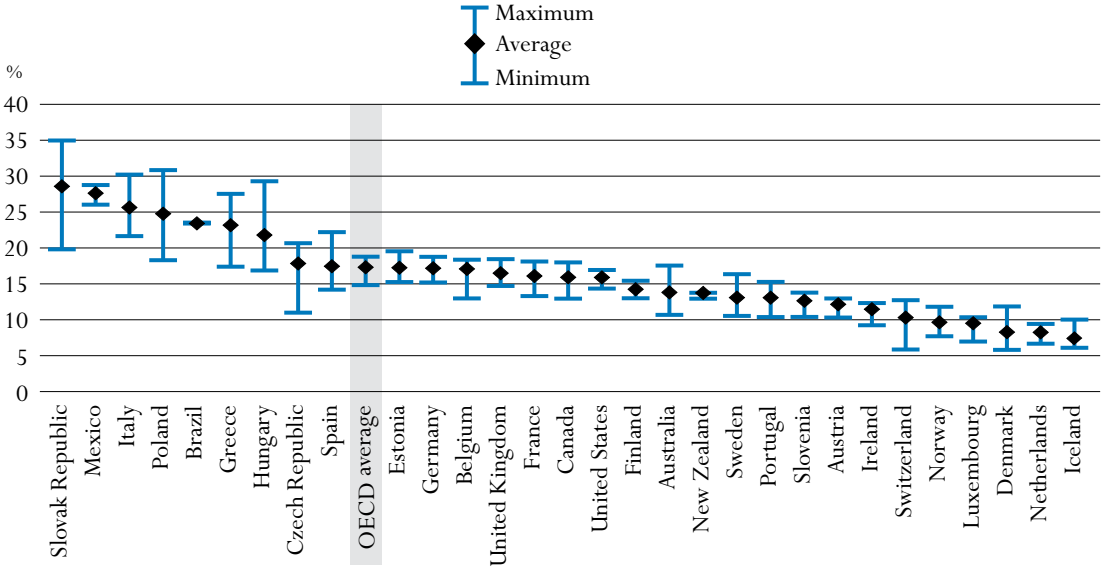
Education and economic cycles

When the labour market deteriorates, those making the transition from school to work are the first to encounter difficulties. As employers are shedding workers it is, in many circumstances virtually impossible for young individuals to get a foothold in the labour market as they compete with more experienced workers for jobs. Because of the expansion of upper secondary education over the years, few 15-19 year-olds are outside the education system. In 2007, less than 17% were not in education, and 7.3% were not in education and not employed (Table C3.4a).

A key constituency for support during difficult economic times is thus the age group 20-29 year-olds. Even though employment rates were substantially higher among 20-29 year-olds, the non-employment rate (*i.e.* not in education and not employed) was twice as high for 20-24 year-olds (14.9%) as for 15-19 year-olds (7.3%). Among 25-29 year-olds, the non-employment rate was 17% in 2007. Not only are non-employment rates higher among the 20-29 year-old population, but this group is also generally more sensitive to shifts in demand for labour. To illustrate this risk, Chart C3.4 shows the lowest, highest, and average proportion of the 20-24 year-old cohort not in education and not employed between 1997 and 2007.

Rates for not being in education and not being employed have varied with 10 percentage points or more in Greece, Hungary, Poland and the Slovak Republic, indicating that the 20-24 year-old population has experienced very different labour market conditions over the past 10 years. Although, the proportion of non-employed youth has generally been lower in Australia, the Czech Republic, Denmark, Spain and Switzerland, the non-employment rates have varied substantially relative to the mean in these countries as well. In most countries, a smooth transition from school to work for young adults is highly dependent on the business cycle and economic conditions. As economic conditions worsen, unemployment rates increases and this is particularly true among younger cohorts.

Chart C3.4. The highest and lowest proportion of the 20-24 year-old cohort not in education and not employed between 1997 and 2007



Countries are ranked in descending order of the average inactivity rate of the 20-24 year-olds.
Source: OECD. Table C3.4a. See Annex 3 (*www.oecd.org/edu/eag2009*).
StatLink http://dx.doi.org/10.1787/664770480457

At the same time, as employment rates drop and the prospects of finding a job decrease, the incentives to invest in education improve. The latest labour market forecast suggests that overall unemployment rates are expected to rise above 10 percentage points in most OECD countries in the coming years (OECD, 2009b). With an additional 25 million unemployed across OECD countries, the prospect of finding a job thus appears dire not only for young adults, but also for the workforce as a whole. The potential earnings that students forego while studying will in many cases be close to zero, and individuals therefore have a strong incentive to pursue further education. In this context, it is important for education systems to increase access and to make additional resources available to educational institutions.

Investments in education also make good economic sense from a policy point of view, as the public opportunity costs are similarly low. Part of the benefit of an active education policy response to weak employment prospects will be immediate in terms of lower non activity rates. Most importantly, however, the stock of human capital and the skills available in the workforce will take a leap forward in the years to come. It is, in other words, a good time to invest in education – not only from the private but also from the public point of view.

Long-term unemployment and prevalence of involuntary part-time work among young adults

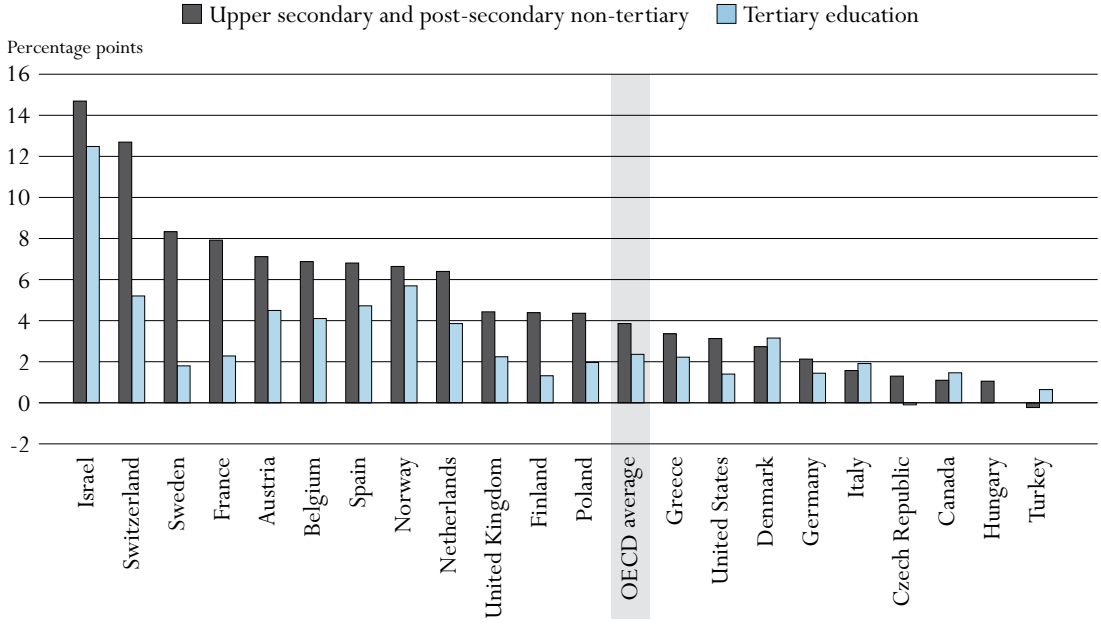
Education typically provides effective insurance against unemployment. However, the advantage of an education is less clear-cut once a young individual becomes unemployed (Table C3.5). On average across OECD countries, 55% of the unemployed 25-34 year-olds with below upper secondary education, 50% among those with upper secondary and post-secondary non-tertiary, and 42% among those with a tertiary education are in the group of long-term unemployed. These figures have worsened somewhat since 2003, with the exception of Spain, the United States, and the partner country Israel where the proportion of long-term unemployed has dropped by 9 percentage points or more.

In most countries an upper secondary education provides some insurance against long-term unemployment, but this varies substantially among countries. In Denmark, Greece, Hungary, Italy, Turkey, and the partner country Israel the long-term unemployment rates among 25-34 year olds are higher for those with upper secondary and post-secondary non-tertiary education than for those with qualifications below the upper secondary level. However, the lower proportion of long-term unemployed needs to be considered in the light of substantially higher overall unemployment rates among those with below upper secondary education.

The long-term unemployment rate is somewhat lower for males than for females, but this varies substantially based on the level of educational attainment and the country. There is, however, a large difference in the prevalence of part-time work and involuntary part-time work within the 25-34 year-old male and female populations (Table C3.6). Females are significantly more likely to have a part-time job than males, 22% compared with 4%, regardless of the educational level attained. Involuntary part-time work is similarly higher among females than males. Females are more than twice as more likely to hold a part-time job involuntarily than are males (5% compared to 2%). Among females with a below upper secondary education, 10% or more hold a part-time job despite a preference for working full-time in Austria, Belgium France, the Netherlands, Norway, Spain, Sweden, Switzerland, the United Kingdom, the United States, and the partner country Israel.

The difference between males and females working part-time involuntarily generally drops with increasing levels of educational attainment. Chart C3.5 shows the difference in the prevalence of involuntary part-time work between 25-34 year-old female and male workers by educational attainment. In all countries, except in Canada, Denmark, Italy, and Turkey the gender difference in involuntary part-time work is lower among those with tertiary education than among those with an upper secondary education.

Chart C3.5. Percentage point difference in the prevalence of involuntary part-time work between 25-34 year-old female and male workers by educational attainment (2007)



Countries are ranked in descending order of the difference between males and females in involuntary part-time work among those with upper secondary and post-secondary non-tertiary education.

Source: OECD. Table C3.6. See Annex 3 (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664770480457

Education thus improves the prospects for females to obtain full-time work when desired. This is particularly true for females with a tertiary education in Sweden and Switzerland where the gender difference drops by more than 6 percentage points. Overall, and with a few exceptions, young female workers are typically disadvantaged in finding full-time work in comparison to males, although these differences are small in number of countries.

Definitions and methodologies

The statistics presented here are calculated from labour force survey data on age-specific proportions of young people in each of the specified categories. These proportions are then totalled over the 15-29 year-old age group to yield the expected number of years spent in various situations. For countries providing data only from age 16, it is assumed that all 15-year-olds are in education and out of the labour force. The principle behind the estimation of expected years in education is that

knowledge of the proportion of young adults in or out of education is used as a basis for assumptions about how long a typical individual will spend in different labour and educational situations.

Persons in education include part-time as well as full-time students, as the coverage should be as close as possible to that of formal education in administrative sources on enrolment. Therefore, non-formal education or educational activities of very short duration (for example, at the work place) are excluded.

Data for this indicator are collected as part of the annual OECD Labour Force Survey (for certain European countries the data are from the annual European Labour Force Survey; see Annex 3) and usually refer to the first quarter, or the average of the first three months of the calendar year, thereby excluding summer employment. The labour force status categories shown in this indicator are defined according to International Labour Organisation (ILO) guidelines, with one exception. For the purposes of this indicator, persons in work-study programmes (see below) have been classified separately as being in education and employed, without reference to their ILO labour force status during the survey reference week. This is because they may not necessarily be in the work component of their programmes during the survey reference week and may therefore not count as being employed at that point. The category *other employed* includes individuals employed according to the ILO definition, but excludes those attending work-study programmes who are already counted as employed. Finally, the category *not in the labour force* includes individuals who are not working and who are not unemployed, *i.e.* individuals who are not looking for a job.

Work-study programmes combine work and education as part of an integrated, formal education or training activity, such as the dual system in Germany; *apprentissage* or *formation en alternance* in France and Belgium; internship or co-operative education in Canada; and apprenticeship in Ireland. Vocational education and training take place both in school settings and working environments. Students or trainees may or may not be paid, usually depending on the type of job and the course or training.

Participation rates in education and training are estimated here on the basis of self-reports collected during labour force surveys, which often correspond imprecisely to enrolments obtained from administrative sources shown elsewhere in this publication for several reasons. First, age may not be measured in the same way. For example, in OECD countries in the northern hemisphere, in administrative data, both enrolment and age are measured on 1 January, whereas in some labour force surveys, both participation in education and age are measured in the reference week, which does not make a significant difference for the administrative measure. However, in other surveys, the age recorded is the age to be attained at the end of the calendar year, even if the survey is conducted early in the year; in this case, the rates of participation in education reflect a population that is one year younger than the specified age range. At ages when movements out of education may be significant, this affects the recorded rates of participation in education and training, which are overestimated. From 2003, the French data take into account the age measured in the reference week. Second, young people may be enrolled in several programmes and may sometimes be counted twice in administrative statistics but only once in a labour force survey. Moreover, not all enrolments may be captured in administrative statistics, particularly in profit-making institutions. Third, the programme classification used in self-reports in labour force surveys does not always correspond to the qualification standards used for administrative data collections.

The unemployment-to-population and the employment-to-population ratios are calculated by dividing the total number of individuals unemployed or employed by the number of individuals in that population.

With respect to Table C3.4b, available on line, there is a break in the time series for Finland. In 2004, military conscripts in Finland were not included in the data, but in previous years they were included in the category "Not in education, not employed".

The data on duration of unemployment and involuntary part-time work were collected in the data collection on Monitoring Transition Systems, which was conducted by the former Network B in 2008. Data mainly refer to the national Labour Force Surveys for the first quarter of the years 2003 and 2007. EUROSTAT has provided data from the EU-LFS for countries in the European Statistical System. In a few cases the EUROSTAT data have been replaced by national data. See Annex 3 for detailed information about data sources.

Further references

OECD (2009b), *OECD Economic Outlook, Interim Report March 2009*, OECD, Paris.

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/664770480457

- ***Table C3.1b. Trends in expected years in education and not in education for 15-to-29-year-olds (1998-2007), by gender***
- ***Table C3.2b. Percentage of young males in education and not in education (2007), by age group and work status***
- ***Table C3.2c. Percentage of young females in education and not in education (2007), by age group and work status***
- ***Table C3.4b. Trends in the percentage of young males in education and not in education (1995, 1997-2007), by age group and work status***
- ***Table C3.4c. Trends in the percentage of young females in education and not in education (1995, 1997-2007), by age group and work status***

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Table C3.1a.

Expected years in education and not in education for 15-29 year-olds (2007)

By gender and work status

OECD countries		Expected years in education			Expected years not in education			
		Not employed	Employed (including work study programmes)	Sub-total	Employed	Unemployed	Not in the labour force	Sub-total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
Australia	Males	2.9	3.9	6.8	7.1	0.6	0.5	8.2
	Females	2.8	4.0	6.8	6.1	0.4	1.7	8.2
	M+F	2.9	3.9	6.8	6.6	0.5	1.1	8.2
Austria	Males	3.7	2.8	6.4	7.3	0.7	0.6	8.6
	Females	4.2	2.3	6.5	6.6	0.5	1.4	8.5
	M+F	4.0	2.5	6.5	6.9	0.6	1.0	8.5
Belgium	Males	6.1	0.5	6.6	6.8	0.9	0.6	8.4
	Females	6.5	0.6	7.0	5.7	1.0	1.2	8.0
	M+F	6.3	0.5	6.8	6.3	1.0	0.9	8.2
Canada	Males	3.8	2.4	6.1	7.1	0.9	0.9	8.9
	Females	3.6	3.3	7.0	6.2	0.5	1.4	8.0
	M+F	3.7	2.8	6.5	6.6	0.7	1.1	8.5
Czech Republic	Males	4.9	1.6	6.5	7.7	0.6	0.2	8.5
	Females	5.9	1.1	6.9	5.3	0.5	2.3	8.1
	M+F	5.4	1.3	6.7	6.5	0.5	1.2	8.3
Denmark	Males	2.9	4.3	7.2	6.9	0.4	0.5	7.8
	Females	3.5	5.0	8.5	5.3	0.4	0.9	6.5
	M+F	3.2	4.7	7.8	6.1	0.4	0.7	7.2
Finland	Males	6.0	2.2	8.2	5.6	0.7	0.5	6.8
	Females	5.8	2.9	8.8	4.4	0.6	1.2	6.2
	M+F	5.9	2.6	8.5	5.0	0.7	0.9	6.5
France	Males	5.9	1.5	7.4	6.0	1.1	0.4	7.6
	Females	6.4	1.4	7.8	5.0	1.0	1.2	7.2
	M+F	6.2	1.4	7.6	5.5	1.1	0.8	7.4
Germany	Males	5.0	3.1	8.0	5.4	1.1	0.4	7.0
	Females	4.9	2.7	7.7	5.1	0.8	1.5	7.3
	M+F	4.9	2.9	7.9	5.3	0.9	0.9	7.1
Greece	Males	5.8	0.4	6.2	7.2	1.1	0.6	8.8
	Females	6.3	0.4	6.6	4.9	1.6	1.8	8.4
	M+F	6.0	0.4	6.4	6.1	1.3	1.2	8.6
Hungary	Males	6.4	0.5	7.0	6.3	0.9	0.8	8.0
	Females	6.9	0.8	7.6	4.4	0.6	2.4	7.4
	M+F	6.6	0.6	7.3	5.4	0.8	1.6	7.7
Iceland	Males	3.8	3.9	7.8	6.8	c	c	7.2
	Females	3.6	5.6	9.2	4.6	c	0.9	5.8
	M+F	3.7	4.8	8.5	5.7	0.2	0.5	6.5
Ireland	Males	3.9	0.8	4.6	9.1	0.7	0.6	10.4
	Females	4.2	1.1	5.4	7.7	0.5	1.5	9.6
	M+F	4.1	0.9	5.0	8.4	0.6	1.0	10.0
Italy	Males	5.8	0.4	6.2	6.3	1.0	1.5	8.8
	Females	6.6	0.5	7.2	4.3	0.9	2.6	7.8
	M+F	6.2	0.5	6.7	5.3	0.9	2.1	8.3
Japan[1]	Males	5.1	1.0	6.1	3.3	0.4	0.3	3.9
	Females	4.7	0.8	5.6	3.5	0.3	0.6	4.4
	M+F	4.9	0.9	5.8	3.4	0.3	0.4	4.2
Luxembourg	Males	6.6	0.5	7.1	6.5	1.0	0.4	7.9
	Females	7.6	0.2	7.8	5.9	0.6	0.7	7.2
	M+F	7.1	0.3	7.5	6.2	0.8	0.5	7.5
Mexico	Males	3.8	1.5	5.2	8.5	0.5	0.8	9.8
	Females	4.0	0.9	4.9	4.6	0.3	5.2	10.1
	M+F	3.9	1.2	5.1	6.5	0.4	3.1	9.9
Netherlands	Males	3.1	4.9	8.0	6.2	0.2	0.5	7.0
	Females	3.2	4.7	7.9	5.8	0.3	1.0	7.1
	M+F	3.2	4.8	8.0	6.0	0.3	0.7	7.0
New Zealand	Males	3.6	3.2	6.8	6.9	0.4	0.9	8.2
	Females	3.5	3.2	6.7	5.7	0.4	2.1	8.3
	M+F	3.6	3.2	6.8	6.3	0.4	1.5	8.2

1. Data refer to 15-24 year-olds.

Source: OECD. See Annex 3 for notes (www.oecd.org/edu/eag2009).

StatLink http://dx.doi.org/10.1787/664770480457

Table C3.1a. *(continued)*

Expected years in education and not in education for 15-29 year-olds (2007)

By gender and work status

			Expected years in education			Expected years not in education			
			Not employed	Employed (including work study programmes)	Sub-total	Employed	Unemployed	Not in the labour force	Sub-total
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD countries	**Norway**	Males	4.4	1.8	6.2	7.9	0.3	0.6	8.8
		Females	4.1	3.0	7.1	6.6	0.3	1.0	7.9
		M+F	4.3	2.4	6.7	7.2	0.3	0.8	8.3
	Poland	Males	6.4	1.5	7.9	5.2	1.2	0.7	7.1
		Females	6.9	1.3	8.1	4.1	1.0	1.8	6.9
		M+F	6.6	1.4	8.0	4.6	1.1	1.2	7.0
	Portugal	Males	5.1	0.6	5.7	7.7	1.0	0.6	9.3
		Females	5.6	0.5	6.1	6.5	1.3	1.1	8.9
		M+F	5.3	0.5	5.9	7.1	1.2	0.8	9.1
	Slovak Republic	Males	4.9	1.0	5.9	7.3	1.3	0.4	9.1
		Females	5.3	0.9	6.3	5.3	1.1	2.4	8.7
		M+F	5.1	1.0	6.1	6.3	1.2	1.4	8.9
	Spain	Males	4.3	0.8	5.1	8.1	0.9	0.9	9.9
		Females	4.9	0.9	5.8	6.3	1.1	1.8	9.2
		M+F	4.6	0.9	5.4	7.2	1.0	1.3	9.6
	Sweden	Males	5.9	1.2	7.1	6.5	0.8	0.6	7.9
		Females	6.1	1.8	8.0	5.5	0.6	0.9	7.0
		M+F	6.0	1.5	7.5	6.0	0.7	0.7	7.5
	Switzerland	Males	2.7	4.2	6.8	6.9	0.5	0.8	8.2
		Females	3.2	3.6	6.8	6.4	0.6	1.2	8.2
		M+F	2.9	3.9	6.8	6.6	0.5	1.0	8.2
	Turkey	Males	3.1	0.6	3.8	7.9	1.5	1.9	11.2
		Females	2.6	0.3	2.9	3.1	0.6	8.3	12.1
		M+F	2.8	0.5	3.3	5.5	1.1	5.1	11.7
	United Kingdom	Males	3.8	2.1	5.9	7.3	0.9	0.8	9.1
		Females	3.8	2.4	6.1	6.2	0.6	2.1	8.9
		M+F	3.8	2.2	6.0	6.7	0.8	1.5	9.0
	United States	Males	4.3	2.2	6.5	7.1	0.7	0.8	8.5
		Females	4.2	2.7	6.9	5.6	0.4	2.0	8.1
		M+F	4.3	2.5	6.7	6.3	0.6	1.4	8.3
	OECD average	***Males***	***4.6***	***1.9***	***6.5***	***6.9***	***0.8***	***0.7***	***8.3***
		Females	***4.9***	***2.0***	***6.9***	***5.4***	***0.7***	***1.9***	***7.9***
		M+F	***4.7***	***2.0***	***6.7***	***6.1***	***0.7***	***1.3***	***8.1***
	EU19 average	***Males***	***5.1***	***1.6***	***6.7***	***6.8***	***0.9***	***0.6***	***8.3***
		Females	***5.5***	***1.7***	***7.2***	***5.5***	***0.8***	***1.6***	***7.8***
		M+F	***5.3***	***1.6***	***6.9***	***6.2***	***0.8***	***1.1***	***8.1***
Partner countries	**Brazil**	Males	2.7	2.5	5.2	8.1	0.7	1.0	9.8
		Females	3.3	2.0	5.3	5.4	1.1	3.1	9.7
		M+F	3.0	2.2	5.3	6.7	0.9	2.0	9.7
	Estonia	Males	5.4	1.2	6.6	6.9	0.7	0.8	8.4
		Females	6.5	1.3	7.8	4.8	0.4	2.0	7.2
		M+F	5.9	1.3	7.2	5.8	0.6	1.4	7.8
	Israel	Males	4.7	1.4	6.0	4.7	0.5	3.7	9.0
		Females	4.5	1.8	6.3	4.0	0.7	4.0	8.7
		M+F	4.6	1.6	6.1	4.4	0.6	3.8	8.9
	Slovenia	Males	5.5	2.4	7.9	5.9	0.6	0.6	7.1
		Females	6.6	2.5	9.1	4.1	0.8	1.0	5.9
		M+F	6.0	2.4	8.5	5.0	0.7	0.8	6.5

1. Data refer to 15-24 year-olds.

Source: OECD. See Annex 3 for notes (www.oecd.org/edu/eag2009).

StatLink http://dx.doi.org/10.1787/664770480457

Table C3.2a.

Percentage of the youth population in education and not in education (2007)

By age group and work status

OECD countries	Age group	In education					Not in education				Total in education and not in education
		Students in work-study programmes[1]	Other employed	Unemployed	Not in the labour force	Sub-total	Employed	Unemployed	Not in the labour force	Sub-total	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Australia	15-19	7.6	30.9	4.7	36.5	79.6	13.9	3.3	3.2	20.4	100
	20-24	6.2	20.9	1.4	10.6	39.1	50.1	3.3	7.4	60.9	100
	25-29	1.1	11.8	0.7	4.0	17.7	68.0	3.0	11.4	82.3	100
Austria	15-19	25.9	4.0	c	55.1	85.6	9.1	3.2	2.0	14.4	100
	20-24	2.7	10.0	c	19.3	32.5	56.5	5.0	6.0	67.5	100
	25-29	c	8.6	c	5.3	14.2	70.4	4.0	11.4	85.8	100
Belgium	15-19	1.0	2.6	0.8	87.5	91.9	2.9	2.2	3.0	8.1	100
	20-24	c	2.8	0.9	35.0	39.4	45.2	8.5	6.9	60.6	100
	25-29	c	2.9	c	3.3	7.2	75.5	8.8	8.4	92.8	100
Canada	15-19	a	30.2	4.9	45.2	80.2	12.5	2.8	4.5	19.8	100
	20-24	a	19.7	1.3	17.5	38.5	47.8	5.6	8.2	61.5	100
	25-29	a	6.9	0.4	4.9	12.2	72.6	5.5	9.7	87.8	100
Czech Republic	15-19	19.9	0.5	c	72.2	92.7	4.4	1.8	1.1	7.3	100
	20-24	0.9	3.3	0.2	37.6	42.1	46.9	4.6	6.4	57.9	100
	25-29	c	3.7	0.1	5.2	9.0	71.6	4.0	15.4	91.0	100
Denmark	15-19	a	47.1	5.4	32.3	84.8	11.3	1.4	2.5	15.2	100
	20-24	a	31.5	1.6	14.9	48.0	43.8	3.2	5.0	52.0	100
	25-29	a	14.8	1.5	8.0	24.2	66.8	3.0	5.9	75.8	100
Finland	15-19	a	13.4	6.4	72.4	92.2	4.3	1.5	2.1	7.8	100
	20-24	a	20.7	4.2	27.0	51.9	34.8	6.7	6.6	48.1	100
	25-29	a	16.8	1.9	8.5	27.2	59.5	4.8	8.5	72.8	100
France	15-19	5.6	2.0	0.9	82.6	91.1	3.1	3.4	2.4	8.9	100
	20-24	3.7	7.7	1.6	34.1	47.1	37.8	9.7	5.4	52.9	100
	25-29	0.6	8.8	0.6	4.2	14.2	69.0	8.4	8.5	85.8	100
Germany	15-19	18.7	6.8	1.5	65.2	92.2	3.6	2.5	1.7	7.8	100
	20-24	14.2	9.2	0.6	21.7	45.7	39.1	8.1	7.2	54.3	100
	25-29	2.2	7.2	0.6	8.7	18.7	62.8	8.5	10.0	81.3	100
Greece	15-19	a	1.6	c	84.8	86.7	4.8	2.6	5.9	13.3	100
	20-24	a	4.5	1.4	41.5	47.3	35.0	11.1	6.6	52.7	100
	25-29	a	2.3	c	5.1	7.9	70.2	11.7	10.2	92.1	100
Hungary	15-19	a	c	c	92.0	92.3	2.7	1.6	3.4	7.7	100
	20-24	a	4.5	0.8	43.9	49.2	33.9	6.7	10.2	50.8	100
	25-29	a	7.3	0.7	5.9	13.9	63.2	6.3	16.6	86.1	100
Iceland	15-19	a	41.0	c	39.2	83.8	13.3	c	c	16.2	100
	20-24	a	34.8	c	19.8	55.8	37.8	c	c	44.2	100
	25-29	a	19.3	0.0	9.7	29.0	64.3	c	5.6	71.0	100
Ireland	15-19	a	11.0	0.9	70.7	82.6	12.3	2.8	2.3	17.4	100
	20-24	a	7.8	c	17.6	25.9	62.0	4.9	7.2	74.1	100
	25-29	a	1.6	c	3.2	4.9	81.5	4.0	9.6	95.1	100
Italy	15-19	c	0.7	0.2	82.6	83.5	6.3	2.9	7.3	16.5	100
	20-24	0.3	3.8	1.2	36.4	41.7	35.7	8.1	14.5	58.3	100
	25-29	c	4.0	0.7	11.3	16.1	58.3	7.4	18.2	83.9	100
Japan	15-24	a	9.1	0.1	49.2	58.4	34.0	3.3	4.3	41.6	100
Luxembourg	15-19	a	5.3	c	88.7	94.3	2.7	c	c	5.7	100
	20-24	a	c	0.0	53.9	55.1	35.6	5.9	3.3	44.9	100
	25-29	a	c	0.0	6.6	7.1	79.1	8.0	5.9	92.9	100
Mexico	15-29	a	7.7	0.5	25.4	33.7	43.2	2.7	20.5	66.3	100
Netherlands	15-19	a	46.1	5.5	36.6	88.1	8.3	1.1	2.5	11.9	100
	20-24	a	46.1	5.5	36.6	50.8	8.3	1.1	2.5	49.2	100
	25-29	a	15.4	0.4	4.0	19.8	70.6	2.0	7.6	80.2	100
New Zealand	15-19	a	29.9	4.5	38.7	73.1	17.6	2.6	6.7	26.9	100
	20-24	a	20.5	1.2	17.1	38.9	47.5	3.2	10.5	61.1	100
	25-29	a	12.7	1.3	5.1	19.2	65.2	2.5	13.2	80.8	100

1. Students in work-study programmes are considered to be both in education and employed, irrespective of their labour market status according to the ILO definition.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664770480457

C3

Table C3.2a. *(continued)*

Percentage of the youth population in education and not in education (2007)

By age group and work status

		Age group	In education					Not in education				Total in education and not in education
			Students in work-study programmes[1]	Other employed	Unemployed	Not in the labour force	Sub-total	Employed	Unemployed	Not in the labour force	Sub-total	
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD countries	**Norway**	15-19	a	24.3	3.6	52.7	80.6	15.8	c	2.6	19.4	100
		20-24	a	18.0	c	18.7	37.7	53.6	2.9	5.8	62.3	100
		25-29	a	5.3	c	6.4	12.2	77.4	2.1	8.3	87.8	100
	Poland	15-19	a	3.9	0.8	91.1	95.9	1.7	1.0	1.5	4.1	100
		20-24	a	15.6	3.9	36.9	56.4	25.2	10.2	8.1	43.6	100
		25-29	a	8.1	0.9	3.8	12.8	62.9	9.9	14.4	87.2	100
	Portugal	15-19	a	1.4	c	78.8	80.4	11.1	4.3	4.2	19.6	100
		20-24	a	4.0	1.1	30.4	35.5	49.3	9.2	6.0	64.5	100
		25-29	a	4.5	1.4	6.2	12.1	72.4	9.1	6.4	87.9	100
	Slovak Republic	15-19	12.0	c	c	78.0	90.2	4.4	3.6	1.8	9.8	100
		20-24	0.9	3.4	c	24.7	29.4	50.7	10.7	9.2	70.6	100
		25-29	a	3.3	c	3.3	6.8	68.0	9.6	15.6	93.2	100
	Spain	15-19	a	3.7	1.4	72.7	77.8	11.3	4.3	6.6	22.2	100
		20-24	a	8.0	1.7	24.8	34.5	48.2	8.4	8.9	65.5	100
		25-29	a	5.3	0.8	4.0	10.0	72.4	7.3	10.3	90.0	100
	Sweden	15-19	a	10.4	7.1	69.4	86.9	7.7	2.2	3.3	13.1	100
		20-24	a	11.4	3.7	24.5	39.6	47.3	6.9	6.2	60.4	100
		25-29	a	8.7	1.9	9.6	20.2	69.2	5.2	5.4	79.8	100
	Switzerland	15-19	35.6	6.8	2.0	39.9	84.4	7.5	1.7	6.5	15.6	100
		20-24	10.6	16.1	c	13.7	41.0	48.6	5.2	5.2	59.0	100
		25-29	1.5	8.4	c	2.6	12.9	75.2	3.9	8.0	87.1	100
	Turkey	15-19	a	2.7	0.4	41.5	44.6	19.3	4.8	31.3	55.4	100
		20-24	a	4.6	1.2	11.8	17.6	36.7	9.1	36.6	82.4	100
		25-29	a	2.7	0.4	1.5	4.7	53.5	7.4	34.4	95.3	100
	United Kingdom	15-19	3.4	16.8	4.0	52.1	76.2	13.0	5.1	5.6	23.8	100
		20-24	2.7	12.2	1.5	13.2	29.7	52.3	6.6	11.5	70.3	100
		25-29	1.0	8.0	0.3	3.4	12.7	71.1	3.9	12.3	87.3	100
	United States	15-19	a	20.7	3.0	61.5	85.2	8.5	2.0	4.3	14.8	100
		20-24	a	19.7	1.2	14.8	35.7	48.1	5.3	11.0	64.3	100
		25-29	a	8.7	c	3.4	12.4	70.7	3.8	13.1	87.6	100
	OECD average	***15-19***		***14.5***	***3.0***	***63.7***	***84.3***	***8.6***	***2.7***	***4.7***	***15.7***	***100***
		20-24		***13.9***	***1.7***	***25.8***	***41.0***	***42.9***	***6.5***	***8.5***	***59.0***	***100***
		25-29		***8.0***	***0.8***	***5.5***	***14.0***	***68.9***	***5.9***	***11.3***	***86.0***	***100***
	EU19 average	***15-19***		***10.4***	***2.9***	***71.8***	***87.7***	***6.6***	***2.6***	***3.3***	***12.3***	***100***
		20-24		***11.5***	***1.9***	***30.2***	***42.2***	***41.5***	***7.1***	***7.2***	***57.8***	***100***
		25-29		***7.3***	***0.8***	***5.8***	***13.6***	***69.2***	***6.6***	***10.6***	***86.4***	***100***
Partner countries	**Brazil**	15-19	a	21.0	6.7	39.4	67.0	18.3	4.1	10.6	33.0	100
		20-24	a	14.9	2.4	7.3	24.6	52.0	8.2	15.2	75.4	100
		25-29	a	8.8	1.1	2.2	12.2	66.0	6.6	15.2	87.8	100
	Estonia	15-19	a	21.0	6.7	39.4	86.0	18.3	4.1	10.6	14.0	100
		20-24	a	14.1	c	30.4	45.4	39.3	4.4	10.9	54.6	100
		25-29	a	8.0	0.0	2.1	10.1	71.4	4.6	13.8	89.9	100
	Israel	15-19	a	21.0	6.7	39.4	68.5	18.3	4.1	10.6	31.5	100
		20-24	a	11.4	1.1	16.0	28.5	31.9	7.1	32.5	71.5	100
		25-29	a	16.5	0.9	7.1	24.5	52.0	3.9	19.6	75.5	100
	Slovenia	15-19	a	7.2	0.4	83.6	91.2	4.5	1.1	3.2	8.8	100
		20-24	a	23.1	2.4	33.2	58.7	30.9	4.5	5.9	41.3	100
		25-29	a	16.8	1.3	7.9	26.1	59.5	8.1	6.3	73.9	100

1. Students in work-study programmes are considered to be both in education and employed, irrespective of their labour market status according to the ILO definition.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664770480457

Table C3.3.

Percentage of the cohort population not in education and unemployed (2007)

By level of educational attainment, age group and gender

OECD countries		Below upper secondary education			Upper secondary and post-secondary non-tertiary education			Tertiary education		All levels of education			
		15-19	20-24	25-29	15-19[1]	20-24	25-29	20-24[1]	25-29	15-19	20-24	25-29	15-29
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Australia	Males	3.5	9.6	8.0	4.5	2.2	3.0	c	c	3.8	3.8	3.6	3.7
	Females	3.2	5.2	c	c	2.6	c	c	2.1	2.9	2.9	2.3	2.7
	M+F	3.3	7.8	6.0	3.2	2.4	2.6	2.5	2.0	3.3	3.3	3.0	3.2
Austria	Males	2.9	11.8	14.8	c	4.7	2.9	m	c	3.5	5.9	4.2	4.5
	Females	2.5	c	c	c	3.2	3.4	c	c	3.0	4.1	3.8	3.7
	M+F	2.7	11.2	10.5	6.4	3.9	3.2	c	c	3.2	5.0	4.0	4.1
Belgium	Males	2.1	18.0	16.8	c	5.5	5.8	c	6.2	2.3	8.2	8.0	6.2
	Females	c	21.3	22.3	c	7.9	9.9	c	4.8	2.1	8.8	9.6	6.9
	M+F	1.7	19.4	19.3	3.9	6.6	7.6	4.1	5.4	2.2	8.5	8.8	6.5
Canada	Males	2.9	13.3	13.5	4.4	7.2	7.7	5.4	4.1	3.4	7.5	6.7	5.9
	Females	1.9	7.2	7.3	3.1	3.5	4.9	2.9	3.5	2.2	3.6	4.3	3.4
	M+F	2.4	11.0	11.0	3.8	5.5	6.6	3.9	3.8	2.8	5.6	5.5	4.6
Czech Republic	Males	1.1	17.3	16.9	8.4	4.0	3.2	c	1.8	2.0	5.2	3.8	3.7
	Females	0.7	7.0	15.8	7.2	3.8	3.9	c	1.9	1.5	4.0	4.3	3.4
	M+F	0.9	12.6	16.4	7.8	3.9	3.5	4.3	1.9	1.8	4.6	4.0	3.5
Denmark	Males	2.0	4.7	c	c	c	c	m	c	2.1	3.1	2.8	2.7
	Females	c	7.3	c	c	c	3.0	c	c	c	3.3	3.2	2.4
	M+F	1.2	5.7	6.4	c	1.7	2.3	c	2.4	1.4	3.2	3.0	2.5
Finland	Males	c	15.5	9.6	c	7.1	4.0	c	4.5	1.4	8.3	4.9	4.9
	Females	c	c	c	c	3.7	5.6	c	3.9	1.5	5.2	4.7	3.8
	M+F	0.9	13.2	7.4	7.4	5.4	4.7	c	4.1	1.5	6.7	4.8	4.4
France	Males	3.9	21.2	17.5	5.2	7.3	8.3	5.9	6.1	4.0	9.8	9.0	7.6
	Females	2.5	23.6	14.9	3.5	7.4	8.2	6.5	5.2	2.7	9.6	7.7	6.7
	M+F	3.2	22.2	16.3	4.3	7.4	8.3	6.2	5.6	3.4	9.7	8.4	7.1
Germany	Males	2.7	15.3	25.5	9.1	7.2	8.8	c	2.9	3.0	9.5	10.3	7.5
	Females	1.7	8.8	12.3	5.7	6.1	6.2	c	4.0	1.9	6.6	6.7	5.1
	M+F	2.2	12.2	18.6	7.1	6.6	7.6	4.9	3.5	2.5	8.1	8.5	6.3
Greece	Males	c	12.3	9.1	c	6.7	8.0	c	11.5	c	8.4	9.1	7.0
	Females	c	c	13.8	c	10.9	15.0	27.9	14.4	2.9	13.9	14.6	10.9
	M+F	c	13.4	10.8	5.9	8.8	11.4	23.7	13.1	2.6	11.1	11.7	8.9
Hungary	Males	1.8	14.6	19.2	c	6.1	6.5	c	c	2.3	7.8	7.4	6.0
	Females	c	8.2	9.0	c	5.0	5.0	c	3.4	0.9	5.6	5.1	4.0
	M+F	1.3	11.7	14.1	4.0	5.6	5.8	7.6	2.9	1.6	6.7	6.3	5.0
Iceland	Males	c	c	c	c	c	c	c	c	c	c	c	c
	Females	c	c	c	c	c	c	c	c	c	c	c	c
	M+F	c	c	c	c	c	c	c	c	c	c	c	1.6
Ireland	Males	3.2	15.9	9.2	c	4.2	4.9	c	3.0	3.6	5.8	4.6	4.7
	Females	c	c	c	c	3.2	c	3.8	c	2.0	3.9	3.3	3.2
	M+F	2.4	12.8	8.3	3.3	3.7	4.6	3.8	2.5	2.8	4.9	4.0	4.0
Italy	Males	2.4	12.5	9.6	9.3	7.8	4.9	c	9.0	3.3	8.9	7.0	6.5
	Females	1.7	11.9	8.5	7.5	6.1	6.0	5.0	11.4	2.5	7.2	7.8	6.0
	M+F	2.1	12.3	9.2	8.3	6.9	5.4	4.1	10.5	2.9	8.1	7.4	6.3
Luxembourg	Males	c	13.4	19.9	c	c	11.4	m	c	c	7.2	11.1	6.8
	Females	c	c	c	c	c	c	c	c	c	4.7	4.8	3.9
	M+F	c	9.6	14.4	c	3.7	7.7	c	4.9	c	5.9	8.0	5.4
Mexico	Males	m	m	m	m	m	m	m	m	m	m	m	3.3
	Females	m	m	m	m	m	m	m	m	m	m	m	2.1
	M+F	m	m	m	m	m	m	m	m	m	m	m	2.7
Netherlands	Males	0.9	3.9	4.5	2.1	1.2	1.0	c	1.4	1.1	1.9	1.9	1.6
	Females	1.0	5.7	4.2	1.8	1.2	2.2	c	1.5	1.2	2.1	2.2	1.8
	M+F	0.9	4.6	4.4	2.0	1.2	1.6	c	1.5	1.1	2.0	2.0	1.7
New Zealand	Males	2.4	6.9	4.1	2.5	c	c	3.3	2.2	2.5	3.1	2.5	2.7
	Females	3.3	6.5	4.5	2.1	2.1	3.3	2.9	1.4	2.8	3.2	2.5	2.8
	M+F	2.8	6.7	4.3	2.3	1.8	2.5	3.1	1.7	2.6	3.2	2.5	2.8

1. Differences between countries in these columns reflect in part the fact that the average age of graduation varies across countries. For instance, in some countries a smaller share of 15-19 year-olds attain upper secondary education simply because graduation typically occurs at 19. This means that the denominator in the ratio for the reported columns will be smaller than those for which graduation occurs at an earlier age.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664770480457

C3

Table C3.3. *(continued)*

Percentage of the cohort population not in education and unemployed (2007)

By level of educational attainment, age group and gender

			Below upper secondary education			Upper secondary and post-secondary non-tertiary education			Tertiary education		All levels of education			
			15-19	20-24	25-29	15-19[1]	20-24	25-29	20-24[1]	25-29	15-19	20-24	25-29	15-29
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries	**Norway**	Males	c	c	c	c	c	1.3	0.0	c	c	c	1.9	2.1
		Females	c	c	c	c	c	1.4	c	c	c	c	2.4	1.8
		M+F	c	c	c	c	c	1.3	c	c	c	2.9	2.1	2.0
	Poland	Males	0.6	20.8	19.5	7.1	10.0	10.7	9.3	8.5	1.2	11.1	10.8	7.9
		Females	c	13.2	7.4	5.7	8.9	10.6	9.5	6.9	0.8	9.3	8.9	6.6
		M+F	0.3	17.9	14.3	6.3	9.4	10.6	9.5	7.5	1.0	10.2	9.9	7.3
	Portugal	Males	4.7	10.3	7.7	c	4.2	4.6	c	8.9	4.7	8.4	7.1	6.9
		Females	3.4	13.2	12.0	c	5.8	8.9	19.0	11.9	3.9	10.0	11.1	8.7
		M+F	4.0	11.5	9.5	6.3	5.1	6.7	19.9	10.8	4.3	9.2	9.1	7.8
	Slovak Republic	Males	2.8	37.5	48.1	15.7	10.2	8.1	c	c	4.2	12.6	10.1	9.0
		Females	1.7	14.3	33.5	11.1	7.7	8.9	c	c	3.0	8.7	9.1	7.0
		M+F	2.3	25.6	41.4	13.2	9.0	8.5	c	4.2	3.6	10.7	9.6	8.0
	Spain	Males	4.1	10.2	7.7	5.6	4.4	5.4	5.2	5.9	4.2	7.1	6.5	6.1
		Females	4.6	14.4	11.3	3.1	7.4	6.8	7.4	6.9	4.4	9.7	8.2	7.6
		M+F	4.3	11.9	9.2	4.2	5.9	6.1	6.5	6.4	4.3	8.4	7.3	6.8
	Sweden	Males	c	c	c	c	8.6	4.4	c	c	2.3	7.9	5.2	5.0
		Females	c	c	c	c	7.0	6.1	c	c	2.0	5.9	5.3	4.3
		M+F	c	12.8	12.7	9.6	7.9	5.1	c	3.6	2.2	6.9	5.2	4.7
	Switzerland	Males	c	c	c	c	4.2	c	c	c	c	5.0	3.3	3.4
		Females	c	c	c	c	4.7	4.6	c	c	c	5.4	4.5	3.8
		M+F	1.6	8.3	c	c	4.4	3.6	c	3.5	1.7	5.2	3.9	3.6
	Turkey	Males	6.2	15.0	11.4	7.5	9.3	8.9	18.1	10.0	6.7	12.8	10.4	9.7
		Females	1.5	2.4	1.7	6.4	7.6	7.3	20.3	11.2	2.8	5.9	4.2	4.3
		M+F	3.9	7.5	6.2	7.0	8.6	8.3	19.3	10.5	4.8	9.1	7.4	7.0
	United Kingdom	Males	8.0	14.2	8.3	4.1	6.1	4.8	4.8	c	6.4	7.9	4.5	6.3
		Females	4.0	9.4	5.4	3.4	4.2	3.5	4.2	1.6	3.7	5.3	3.2	4.1
		M+F	6.2	11.8	6.9	3.7	5.1	4.1	4.5	1.6	5.1	6.6	3.9	5.2
	United States	Males	1.1	10.1	5.7	6.0	5.9	6.0	4.8	c	2.4	6.3	4.5	4.4
		Females	c	7.8	c	3.3	4.1	4.1	3.0	1.7	1.6	4.2	3.2	3.0
		M+F	0.9	9.1	5.6	4.6	5.0	5.1	3.8	1.8	2.0	5.3	3.8	3.7
	OECD average	***Males***	***3.0***	***14.1***	***13.9***	***6.5***	***6.1***	***5.9***	***6.3***	***5.7***	***3.2***	***7.3***	***6.2***	***5.4***
		Females	***2.4***	***10.4***	***11.5***	***4.9***	***5.4***	***6.0***	***9.4***	***5.4***	***2.4***	***6.1***	***5.7***	***4.6***
		M+F	***2.3***	***12.1***	***11.8***	***5.7***	***5.4***	***5.6***	***7.7***	***4.8***	***2.7***	***6.6***	***5.9***	***4.9***
	EU19 average	***Males***	***2.9***	***15.0***	***15.5***	***7.4***	***6.2***	***6.0***	***6.3***	***5.8***	***3.0***	***7.6***	***6.8***	***5.8***
		Females	***2.4***	***12.2***	***13.1***	***5.5***	***5.8***	***6.7***	***10.4***	***6.0***	***2.4***	***6.7***	***6.5***	***5.3***
		M+F	***2.3***	***13.3***	***13.2***	***6.1***	***5.7***	***6.0***	***8.2***	***5.1***	***2.6***	***7.2***	***6.6***	***5.5***
Partner countries	**Brazil**	Males	2.6	5.9	4.6	9.3	7.4	5.7	6.9	3.4	3.5	6.6	4.9	5.0
		Females	2.7	8.2	7.7	13.8	11.3	9.4	7.4	5.8	4.7	9.8	8.2	7.6
		M+F	2.7	7.0	6.1	11.9	9.5	7.7	7.2	4.8	4.1	8.2	6.6	6.3
	Estonia	Males	3.6	12.2	c	c	c	c	m	c	3.6	6.2	5.3	5.0
		Females	c	c	c	c	c	8.1	c	c	c	2.7	3.9	2.6
		M+F	2.3	10.9	c	c	3.1	5.4	c	c	2.5	4.4	4.6	3.8
	Israel	Males	1.1	8.0	7.6	c	5.4	2.4	c	3.9	1.2	6.0	3.6	3.6
		Females	c	14.4	c	4.1	7.9	4.1	7.3	4.3	1.7	8.3	4.2	4.7
		M+F	0.8	10.2	6.5	2.7	6.6	3.1	7.3	4.1	1.4	7.1	3.9	4.1
	Slovenia	Males	c	12.7	13.7	3.7	4.4	5.5	c	c	1.2	5.5	5.7	4.3
		Females	m	c	20.9	6.3	3.4	9.0	c	11.7	1.0	3.4	10.6	5.4
		M+F	c	8.3	16.2	4.7	3.9	7.0	c	8.8	1.1	4.5	8.1	4.8

1. Differences between countries in these columns reflect in part the fact that the average age of graduation varies across countries. For instance, in some countries a smaller share of 15-19 year-olds attain upper secondary education simply because graduation typically occurs at 19. This means that the denominator in the ratio for the reported columns will be smaller than those for which graduation occurs at an earlier age.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664770480457

Table C3.4a.

Trends in the percentage of the youth population in education and not in education (1995, 1997-2007)

By age group and work status

OECD countries	Age group	1995			1997			2000			2005			2007		
		In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education	
		Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed
		(1)	(2)	(3)	(4)	(5)	(6)	(13)	(14)	(15)	(28)	(29)	(30)	(34)	(35)	(36)
Australia	15-19	73.4	16.7	9.9	77.8	14.2	8.1	79.5	13.7	6.8	78.3	14.3	7.4	79.6	13.9	6.5
	20-24	27.0	56.1	16.9	31.5	51.0	17.5	35.9	50.9	13.3	39.4	49.0	11.6	39.1	50.1	10.7
	25-29	11.4	67.1	21.5	12.8	65.4	21.7	15.5	65.5	19.0	16.6	68.0	15.4	17.7	68.0	14.4
Austria	15-19	m	m	m	m	m	m	m	m	m	84.4	8.7	6.9	85.6	9.1	5.3
	20-24	m	m	m	m	m	m	m	m	m	30.4	57.2	12.4	32.5	56.5	11.0
	25-29	m	m	m	m	m	m	m	m	m	12.0	74.6	13.4	14.2	70.4	15.4
Belgium	15-19	86.1	3.3	10.5	88.0	3.0	9.0	89.9	3.6	6.5	90.1	3.7	6.2	91.9	2.9	5.2
	20-24	37.5	43.6	19.0	39.1	42.6	18.3	43.8	40.2	16.0	38.1	43.6	18.3	39.4	45.2	15.4
	25-29	6.8	74.2	19.0	7.2	74.8	17.9	11.8	72.5	15.7	7.4	74.9	17.7	7.2	75.5	17.2
Canada	15-19	79.9	10.5	9.5	82.9	9.4	7.7	80.6	11.2	8.2	80.2	12.8	7.0	80.2	12.5	7.3
	20-24	33.9	47.3	18.7	36.8	45.3	17.9	35.7	48.5	15.7	39.2	46.3	14.4	38.5	47.8	13.7
	25-29	10.3	67.7	22.1	10.3	68.1	21.6	10.6	72.3	17.1	12.5	71.7	15.8	12.2	72.6	15.2
Czech Republic	15-19	69.8	23.7	6.5	76.9	18.1	5.0	82.1	10.0	7.9	90.3	4.4	5.3	92.7	4.4	2.9
	20-24	13.1	67.1	19.8	16.3	65.5	18.2	19.7	60.0	20.3	35.9	47.5	16.6	42.1	46.9	11.0
	25-29	1.1	76.1	22.9	1.6	74.2	24.3	2.4	72.1	25.6	4.4	72.4	23.2	9.0	71.6	19.4
Denmark	15-19	88.4	8.7	3.0	89.4	9.2	1.4	89.9	7.4	2.7	88.4	7.3	4.3	84.8	11.3	3.9
	20-24	50.0	39.3	10.7	54.1	39.4	6.5	54.8	38.6	6.6	54.4	37.2	8.3	48.0	43.8	8.2
	25-29	29.6	59.0	11.4	32.3	58.9	8.8	36.1	56.4	7.5	27.0	61.3	11.6	24.2	66.8	8.9
Finland	15-19	m	m	m	m	m	m	m	m	m	90.2	4.5	5.2	92.2	4.3	3.5
	20-24	m	m	m	m	m	m	m	m	m	52.8	34.1	13.0	51.9	34.8	13.3
	25-29	m	m	m	m	m	m	m	m	m	25.7	60.3	14.0	27.2	59.5	13.3
France	15-19	96.2	1.3	2.5	96.0	1.1	2.9	95.3	1.5	3.3	91.0	3.0	6.0	91.1	3.1	5.8
	20-24	51.2	31.3	17.5	53.4	28.5	18.0	54.2	31.7	14.1	46.8	37.4	15.8	47.1	37.8	15.1
	25-29	11.4	67.5	21.0	12.2	65.8	22.0	12.2	69.2	18.6	12.8	70.0	17.3	14.2	69.0	16.8
Germany	15-19	m	m	m	89.6	5.4	5.0	87.4	6.8	5.7	92.9	2.7	4.4	92.2	3.6	4.2
	20-24	m	m	m	32.7	48.9	18.4	34.1	49.0	16.9	44.2	37.1	18.7	45.7	39.1	15.2
	25-29	m	m	m	14.1	67.3	18.5	12.7	69.8	17.5	18.5	60.3	21.2	18.7	62.8	18.5
Greece	15-19	80.0	9.6	10.5	82.3	8.1	9.6	82.7	8.3	9.0	84.5	5.7	9.8	86.7	4.8	8.5
	20-24	29.2	43.0	27.8	31.9	40.6	27.5	31.5	43.7	24.9	42.6	37.3	20.1	47.3	35.0	17.7
	25-29	4.7	65.2	30.2	5.2	65.4	29.4	5.3	66.9	27.8	6.8	70.2	23.0	7.9	70.2	21.9
Hungary	15-19	82.5	6.7	10.8	85.8	5.3	8.9	83.7	7.7	8.6	90.6	3.0	6.4	92.3	2.7	5.0
	20-24	22.5	44.4	33.1	28.5	42.3	29.2	32.3	45.7	22.0	46.6	34.5	18.9	49.2	33.9	16.9
	25-29	7.3	56.8	35.9	6.5	58.2	35.3	9.4	61.4	29.2	13.1	63.0	24.0	13.9	63.2	22.9
Iceland	15-19	59.5	25.7	14.8	78.9	17.0	c	83.1	14.8	c	86.4	10.7	c	83.8	13.3	c
	20-24	33.3	52.6	14.0	51.0	42.4	6.6	48.0	47.7	c	53.0	37.1	10.0	55.8	37.8	6.4
	25-29	24.1	64.7	11.1	26.5	64.7	8.8	34.9	59.2	5.9	30.9	61.5	7.6	29.0	64.3	6.6
Ireland	15-19	m	m	m	m	m	m	80.0	15.6	4.4	82.4	13.1	4.5	82.6	12.3	5.1
	20-24	m	m	m	m	m	m	26.7	63.6	9.7	27.7	60.0	12.3	25.9	62.0	12.1
	25-29	m	m	m	m	m	m	3.3	83.4	13.3	5.3	80.9	13.8	4.9	81.5	13.5
Italy	15-19	m	m	m	m	m	m	77.1	9.8	13.1	81.8	7.0	11.2	83.5	6.3	10.2
	20-24	m	m	m	m	m	m	36.0	36.5	27.5	38.6	37.3	24.1	41.7	35.7	22.6
	25-29	m	m	m	m	m	m	17.0	56.1	26.9	14.4	59.8	25.8	16.1	58.3	25.6
Japan	15-24	58.0	34.9	7.1	58.7	33.6	7.7	62.1	29.2	8.8	59.7	31.5	8.8	58.4	34.0	7.6
Luxembourg	15-19	82.7	9.3	8.0	90.2	4.2	5.6	92.2	6.1	c	93.4	4.4	2.2	94.3	2.7	2.9
	20-24	36.5	52.7	10.8	35.2	54.5	10.3	42.8	48.9	8.2	47.4	43.3	9.3	55.1	35.6	9.2
	25-29	8.3	71.6	20.1	8.2	76.2	15.6	11.6	75.5	12.9	8.6	81.2	10.3	7.1	79.1	13.9
Mexico	15-19	45.0	31.8	23.2	49.4	31.6	19.0	47.9	33.8	18.3	m	m	m	m	m	m
	20-24	15.9	53.4	30.7	18.5	52.9	28.7	17.7	55.2	27.1	m	m	m	m	m	m
	25-29	4.6	62.0	33.4	4.9	64.8	30.3	4.0	65.8	30.2	m	m	m	m	m	m
Netherlands	15-19	m	m	m	88.9	8.2	2.8	80.6	15.7	3.7	89.2	7.0	3.9	88.1	8.3	3.6
	20-24	m	m	m	51.0	41.9	7.1	36.5	55.2	8.2	49.1	41.8	9.1	50.8	42.2	6.9
	25-29	m	m	m	23.7	64.3	12.0	5.0	83.0	12.1	18.2	70.2	11.6	19.8	70.6	9.6

Note: Columns showing the percentage of youth population in education and not in education for the years 1998, 1999, 2001-04 and 2006 (*i.e.* columns 7-12, 16-27 and 31-33) are available for consultation on line (see *StatLink* below).

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664770480457

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Table C3.4a. *(continued)*

Trends in the percentage of the youth population in education and not in education (1995, 1997-2007)

By age group and work status

		1995			1997			2000			2005			2007		
		In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education		In education	Not in education	
	Age group	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed	Total	Employed	Not employed
		(1)	(2)	(3)	(4)	(5)	(6)	(13)	(14)	(15)	(28)	(29)	(30)	(34)	(35)	(36)
OECD countries																
New Zealand	15-19	m	m	m	m	m	m	m	m	m	75.9	16.9	7.2	73.1	17.6	9.3
	20-24	m	m	m	m	m	m	m	m	m	39.7	46.6	13.7	38.9	47.5	13.7
	25-29	m	m	m	m	m	m	m	m	m	18.3	66.2	15.5	19.2	65.2	15.7
Norway	15-19	m	m	m	87.1	11.4	c	92.4	5.9	c	87.4	10.1	2.5	80.6	15.8	3.7
	20-24	m	m	m	34.6	53.7	11.7	41.7	50.3	8.0	41.5	48.9	9.6	37.7	53.6	8.8
	25-29	m	m	m	13.6	74.1	12.2	17.5	72.1	10.4	15.7	72.0	12.3	12.2	77.4	10.4
Poland	15-19	89.6	4.2	6.2	90.8	3.8	5.3	92.8	2.6	4.5	97.9	0.4	1.7	95.9	1.7	2.5
	20-24	23.7	42.5	33.8	28.8	45.9	25.3	34.9	34.3	30.8	62.7	17.2	20.1	56.4	25.2	18.3
	25-29	3.1	67.5	29.4	5.4	68.7	25.9	8.0	62.9	29.1	16.4	54.3	29.3	12.8	62.9	24.3
Portugal	15-19	72.4	18.5	9.1	73.0	17.1	9.8	72.6	19.7	7.7	79.3	12.2	8.4	80.4	11.1	8.6
	20-24	37.8	46.6	15.6	38.4	47.4	14.2	36.5	52.6	11.0	37.4	48.4	14.1	35.5	49.3	15.2
	25-29	11.6	70.9	17.4	13.2	71.8	15.0	11.0	76.6	12.5	11.5	73.6	14.9	12.1	72.4	15.5
Slovak Republic	15-19	70.1	14.0	15.9	71.0	12.3	16.7	67.3	6.4	26.3	90.4	3.3	6.3	90.2	4.4	5.4
	20-24	14.8	54.9	30.3	14.5	60.0	25.5	18.1	48.8	33.1	31.0	43.8	25.2	29.4	50.7	19.9
	25-29	1.6	65.5	32.9	4.6	69.1	26.3	1.3	66.9	31.8	6.1	64.9	29.0	6.8	68.0	25.2
Spain	15-19	77.3	11.2	11.5	79.2	9.9	10.9	80.6	11.4	8.0	78.2	11.0	10.8	77.8	11.3	10.9
	20-24	40.0	34.2	25.8	43.0	34.8	22.1	44.6	40.3	15.0	35.1	45.5	19.4	34.5	48.2	17.2
	25-29	14.6	51.5	33.9	15.0	54.3	30.7	16.2	62.4	21.4	10.9	69.3	19.8	10.0	72.4	17.6
Sweden	15-19	87.4	6.9	5.6	91.1	4.3	4.6	90.6	5.8	3.6	89.6	5.8	4.7	86.9	7.7	5.4
	20-24	38.8	43.7	17.5	42.3	41.4	16.3	42.1	47.2	10.7	42.5	44.1	13.4	39.6	47.3	13.1
	25-29	19.9	67.0	13.2	21.4	64.2	14.5	21.9	68.9	9.2	23.6	66.5	10.0	20.2	69.2	10.6
Switzerland	15-19	65.6	10.2	24.2	85.4	6.0	8.5	84.6	7.5	7.9	84.9	7.9	7.2	84.4	7.5	8.2
	20-24	29.5	59.2	11.3	30.6	59.1	10.3	37.4	56.7	5.9	37.3	51.7	11.0	41.0	48.6	10.4
	25-29	10.6	76.2	13.2	10.7	77.5	11.9	15.0	73.9	11.1	15.6	72.3	12.1	12.9	75.2	11.9
Turkey	15-19	38.7	34.2	27.2	36.1	33.6	30.2	39.2	29.6	31.2	42.5	19.9	37.7	44.6	19.3	36.1
	20-24	10.3	46.5	43.2	13.3	38.3	48.4	12.7	43.1	44.2	15.2	37.7	47.1	17.6	36.7	45.7
	25-29	2.7	59.6	37.8	2.7	59.4	37.9	2.9	58.8	38.3	4.3	53.5	42.2	4.7	53.5	41.8
United Kingdom	15-19	m	m	m	m	m	m	77.0	15.0	8.0	76.0	14.6	9.3	76.2	13.0	10.7
	20-24	m	m	m	m	m	m	32.4	52.2	15.4	32.1	51.0	16.8	29.7	52.3	18.1
	25-29	m	m	m	m	m	m	13.3	70.3	16.3	13.3	70.1	16.6	12.7	71.1	16.2
United States	15-19	81.5	10.7	7.8	82.6	10.3	7.1	81.3	11.7	7.0	85.6	8.3	6.1	85.2	8.5	6.3
	20-24	31.5	50.7	17.8	34.3	50.7	15.1	32.5	53.1	14.4	36.1	48.4	15.5	35.7	48.1	16.2
	25-29	11.6	71.4	17.0	11.8	72.2	15.9	11.4	72.8	15.8	11.9	70.0	18.1	12.4	70.7	16.9
OECD average	***15-19***	***75.1***	***13.5***	***11.4***	***80.6***	***11.1***	***8.9***	***80.4***	***11.3***	***9.2***	***84.5***	***8.2***	***7.4***	***84.3***	***8.6***	***7.2***
	20-24	***30.3***	***47.8***	***21.8***	***34.5***	***46.7***	***18.8***	***35.3***	***47.8***	***17.5***	***40.6***	***43.1***	***16.3***	***41.0***	***44.1***	***14.9***
	25-29	***10.3***	***66.4***	***23.3***	***12.0***	***67.3***	***20.7***	***12.4***	***68.6***	***19.0***	***14.1***	***67.9***	***18.0***	***14.0***	***68.9***	***17.0***
EU19 average	***15-19***	***81.9***	***9.8***	***8.3***	***85.2***	***7.9***	***7.0***	***83.6***	***9.0***	***7.7***	***87.4***	***6.4***	***6.2***	***87.7***	***6.6***	***5.8***
	20-24	***32.9***	***45.3***	***21.8***	***36.4***	***45.3***	***18.4***	***36.5***	***46.4***	***17.1***	***41.9***	***42.0***	***16.1***	***42.2***	***43.2***	***14.6***
	25-29	***10.0***	***66.1***	***23.9***	***12.2***	***66.7***	***21.1***	***11.7***	***69.1***	***19.3***	***13.5***	***68.3***	***18.2***	***13.6***	***69.2***	***17.2***
Partner countries																
Brazil	15-19	m	m	m	m	m	m	m	m	m	m	m	m	67.0	18.3	14.7
	20-24	m	m	m	m	m	m	m	m	m	m	m	m	24.6	52.0	23.4
	25-29	m	m	m	m	m	m	m	m	m	m	m	m	12.2	66.0	21.8
Estonia	15-19	m	m	m	m	m	m	m	m	m	92.0	2.9	5.2	86.0	8.2	5.7
	20-24	m	m	m	m	m	m	m	m	m	50.9	32.7	16.3	45.4	39.3	15.3
	25-29	m	m	m	m	m	m	m	m	m	14.2	61.8	24.0	10.1	71.4	18.4
Israel	15-19	m	m	m	m	m	m	m	m	m	68.9	6.3	24.7	68.5	5.7	25.7
	20-24	m	m	m	m	m	m	m	m	m	28.3	31.4	40.3	28.5	31.9	39.6
	25-29	m	m	m	m	m	m	m	m	m	21.4	54.3	24.2	24.5	52.0	23.5
Slovenia	15-19	m	m	m	m	m	m	m	m	m	92.4	2.7	4.9	91.2	4.5	4.3
	20-24	m	m	m	m	m	m	m	m	m	55.7	31.3	13.0	58.7	30.9	10.4
	25-29	m	m	m	m	m	m	m	m	m	24.6	63.9	11.5	26.1	59.5	14.4

Note: Columns showing the percentage of youth population in education and not in education for the years 1998, 1999, 2001-04 and 2006 (*i.e.* columns 7-12, 16-27 and 31-33) are available for consultation on line (see *StatLink* below).
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664770480457

Table C3.5.

Proportion of long-term unemployed among unemployed 25-34 year-olds (2003 and 2007)

Proportion of unemployed with unemployment spells over 6 months by educational attainment and gender

			Proportion of unemployed with unemployment spells over 6 months				Proportion of unemployed males with unemployment spells over 6 months				Proportion of unemployed females with unemployment spells over 6 months			
			Below upper secondary	Upper secondary and post-secondary non-tertiary	Tertiary education	All educational levels	Below upper secondary	Upper secondary and post-secondary non-tertiary	Tertiary education	All educational levels	Below upper secondary	Upper secondary and post-secondary non-tertiary	Tertiary education	All educational levels
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries	Australia	2007	39	26	22	29	34	23	20	26	43	28	22	31
		2003	m	m	m	m	m	m	m	m	m	m	m	m
	Austria	2007	38	41	c	37	48	40	c	41	29	42	c	33
		2003	40	36	63	41	34	31	c	35	46	42	59	46
	Belgium	2007	65	62	52	61	67	57	44	58	62	66	59	63
		2003	m	m	m	m	m	m	m	m	m	m	m	m
	Canada	2007	14	10	10	11	13	10	11	11	17	8	10	10
		2003	14	12	16	14	13	13	18	15	17	10	13	13
	Czech Republic	2007	84	64	42	68	84	58	40	65	85	67	43	70
		2003	83	67	48	69	87	58	40	64	77	72	66	72
	Denmark	2007	24	36	38	34	c	39	c	36	c	33	35	32
		2003	32	29	31	30	c	15	47	26	43	42	21	34
	Finland	2007	c	c	c	38	c	c	c	40	c	c	c	35
		2003	c	c	c	43	c	c	c	43	c	c	c	42
	France	2007	62	52	46	54	59	45	55	52	66	59	39	55
		2004	55	56	49	53	55	56	53	55	54	56	46	52
	Germany	2007	66	60	43	60	66	61	33	60	67	59	52	60
		2003	61	59	47	58	61	58	49	58	61	61	46	59
	Greece	2007	61	67	63	65	51	57	62	57	68	73	64	69
		2003	62	73	78	72	55	68	69	65	68	76	84	76
	Hungary	2007	67	70	64	69	68	68	71	68	66	72	59	69
		2003	56	55	38	54	57	54	m	54	55	56	m	54
	Ireland	2007	69	43	33	50	74	42	39	54	59	44	26	44
		2003	71	49	44	57	74	51	53	64	60	47	34	47
	Italy	2007	66	68	58	65	61	68	56	63	72	68	59	67
		2003	m	m	m	m	m	m	m	m	m	m	m	m
	Luxembourg	2007	71	59	c	67	c	c	c	74	c	c	c	60
		2003	51	55	49	52	c	c	c	58	c	c	c	46
	Netherlands	2007	49	46	32	43	42	51	35	44	57	42	28	43
		2003	56	42	27	43	56	41	29	44	56	42	24	43
	Norway	2007	c	c	c	36	c	c	c	37	c	c	c	35
		2003	m	26	24	23	m	27	c	26	m	c	c	19
	Poland	2007	73	72	62	70	68	68	57	67	84	75	65	74
		2003	m	m	m	m	m	m	m	m	m	m	m	m
	Portugal	2007	61	57	51	59	58	61	59	58	64	56	48	59
		2003	m	m	m	m	m	m	m	m	m	m	m	m
	Slovak Republic	2007	96	83	57	85	98	81	c	85	92	85	40	84
		2003	89	82	82	83	88	80	c	82	91	83	m	84
	Spain	2007	42	35	39	39	41	34	34	38	43	35	42	41
		2003	51	50	54	52	43	45	51	46	57	52	55	55
	Sweden	2007	34	28	29	30	40	32	28	33	28	24	30	27
		2003	28	22	25	24	35	22	23	24	21	22	27	23
	Switzerland	2007	69	58	30	54	c	69	29	54	71	52	32	54
		2003	52	42	27	40	45	37	19	32	57	47	40	48
	Turkey	2007	38	56	62	46	36	48	62	42	51	70	63	62
		2003	m	m	m	m	m	m	m	m	m	m	m	m
	United Kingdom	2007	50	38	28	41	50	44	31	44	52	29	26	36
		2003	m	m	m	m	m	m	m	m	m	m	m	m
	United States	2007	20	20	26	21	9	19	33	20	34	20	21	23
		2003	24	32	33	30	22	30	31	28	28	34	34	33
	OECD average	*2007*	*55*	*50*	*42*	*49*	*53*	*49*	*42*	*49*	*58*	*50*	*41*	*49*
		2003	*52*	*46*	*43*	*47*	*52*	*43*	*40*	*45*	*53*	*49*	*42*	*47*
Partner countries	Estonia	2007	c	c	c	48	c	c	c	c	c	c	c	c
		2003	c	64	c	56	c	78	m	61	c	c	c	51
	Israel	2007	14	29	26	25	9	20	12	15	c	40	31	33
		2003	30	33	45	38	30	26	53	37	c	42	38	39
	Slovenia	2007	69	69	56	66	59	66	m	63	77	72	57	68
		2003	75	59	48	60	77	51	46	57	71	65	50	63

Note: First quarter 2007, except for Austria, Ireland, Switzerland, where second quarter is used and the United States where the third quarter is used. Data for Norway refer to the old classification in 2003.

Austrian and Finland data are based on very small cells and the results should therefore be observed with caution

Source: OECD, Network B special data collection, Monitoring Transition Systems working group.

See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664770480457

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Table C3.6.

Part-time and involuntary part-time work among 25-34 year-olds, by educational attainment (2007)

Proportion of employed 25-34 year-olds with part-time work and proportion of employed with involuntary part-time employment

			Prevalence of part-time and involuntary part-time work among males and females				Prevalence of part-time and involuntary part-time work among males				Prevalence of part-time and involuntary part-time work among females			
			Below upper secondary	Upper secondary and post-secondary non-tertiary	Tertiary education	All educational levels	Below upper secondary	Upper secondary and post-secondary non-tertiary	Tertiary education	All educational levels	Below upper secondary	Upper secondary and post-secondary non-tertiary	Tertiary education	All educational levels
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries	**Austria**	Part-time	27	18	14	18	7	3	5	4	48	38	24	36
		Involuntary part-time	10	5	4	5	c	2	2	2	18	9	6	9
	Belgium	Part-time	19	19	15	17	4	5	4	4	49	42	23	32
		Involuntary part-time	6	5	3	4	0	2	1	1	17	9	5	8
	Canada	Part-time	13	10	9	10	5	5	4	5	28	19	13	16
		Involuntary part-time	2	1	1	1	1	1	0	1	3	2	2	2
	Czech Republic	Part-time	5	3	3	3	3	1	1	1	9	8	6	7
		Involuntary part-time	2	1	0	1	1	0	0	0	3	1	0	1
	Denmark	Part-time	16	11	12	12	8	3	4	4	26	22	19	21
		Involuntary part-time	3	2	3	3	c	1	2	1	5	4	5	4
	Finland	Part-time	c	c	c	7	c	c	c	3	c	c	c	12
		Involuntary part-time	c	c	c	3	c	c	c	2	c	c	c	4
	France	Part-time	12	10	9	10	5	3	3	4	27	22	13	18
		Involuntary part-time	7	5	3	4	3	2	2	2	14	10	4	7
	Germany	Part-time	33	20	15	20	14	6	5	7	61	37	25	36
		Involuntary part-time	2	1	2	2	1	0	1	1	4	3	3	3
	Greece	Part-time	6	5	6	6	3	2	4	3	17	9	8	10
		Involuntary part-time	3	3	5	3	3	1	3	2	6	5	6	5
	Hungary	Part-time	5	3	2	3	3	1	1	1	8	5	3	4
		Involuntary part-time	c	1	c	1	c	1	c	1	5	2	0	2
	Ireland	Part-time	17	11	6	10	5	2	2	3	49	25	10	18
		Involuntary part-time	1	0	1	1	1	c	c	0	2	0	1	1
	Italy	Part-time	12	13	12	13	4	4	6	4	33	24	17	25
		Involuntary part-time	2	2	2	2	1	1	1	1	5	3	3	3
	Luxembourg	Part-time	18	14	11	14	1	5	1	3	41	23	20	25
		Involuntary part-time	0	1	2	1	c	c	c	c	0	1	4	2
	Netherlands	Part-time	32	36	32	34	10	8	12	10	73	67	50	61
		Involuntary part-time	8	5	5	6	3	2	3	3	17	9	7	9
	Norway	Part-time	24	21	16	19	10	6	9	8	46	43	22	33
		Involuntary part-time	6	4	5	5	c	2	2	2	11	8	7	8
	Poland	Part-time	15	7	4	6	12	3	1	3	22	13	7	10
		Involuntary part-time	8	4	2	3	8	2	1	2	7	7	3	5
	Portugal	Part-time	4	3	8	5	2	3	4	3	8	3	10	7
		Involuntary part-time	2	c	4	2	1	c	c	1	3	c	5	3
	Slovak Republic	Part-time	3	1	2	2	0	0	1	0	6	3	3	3
		Involuntary part-time	c	0	c	0	c	c	c	c	c	1	c	1
	Spain	Part-time	11	12	10	11	2	4	4	3	29	22	15	21
		Involuntary part-time	6	5	4	5	1	2	2	2	14	9	7	9
	Sweden	Part-time	19	18	16	17	10	5	8	6	38	39	22	31
		Involuntary part-time	6	5	4	5	4	2	3	3	11	10	5	8
	Switzerland	Part-time	25	27	20	24	6	5	9	7	44	50	37	46
		Involuntary part-time	14	8	5	8	4	2	3	3	24	15	8	14
	Turkey	Part-time	10	3	3	7	4	2	2	3	30	6	4	18
		Involuntary part-time	2	1	0	1	2	1	0	1	3	1	1	2
	United Kingdom	Part-time	20	16	11	15	6	4	3	4	45	34	20	29
		Involuntary part-time	6	4	2	3	3	2	1	2	11	6	3	6
	United States	Part-time	13	11	8	10	8	5	3	4	26	19	13	17
		Involuntary part-time	8	4	2	c	6	3	2	c	13	6	3	5
	OECD average	***Part-time***	***16***	***13***	***11***	***12***	***6***	***4***	***4***	***4***	***33***	***25***	***17***	***22***
		Involuntary part-time	***5***	***3***	***3***	***3***	***3***	***2***	***2***	***2***	***9***	***5***	***4***	***5***
Partner countries	**Estonia**	Part-time	10	4	4	5	4	1	2	2	c	9	6	9
		Involuntary part-time	c	c	c	c	c	c	c	c	c	c	c	c
	Israel	Part-time	15	18	23	20	9	10	10	10	40	30	32	32
		Involuntary part-time	15	14	16	15	c	8	9	8	35	23	21	22
	Slovenia	Part-time	2	3	4	3	1	1	3	1	3	6	4	5
		Involuntary part-time	c	1	2	1	c	c	c	1	c	3	2	2

Note: First quarter 2007, except for Austria, Ireland, Switzerland, where second quarter is used and the United States where the third quarter is used.
Source: OECD, Network B special data collection, Monitoring Transition Systems working group.
See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664770480457

Chapter

D

The Learning Environment and Organisation of Schools

INDICATOR D1

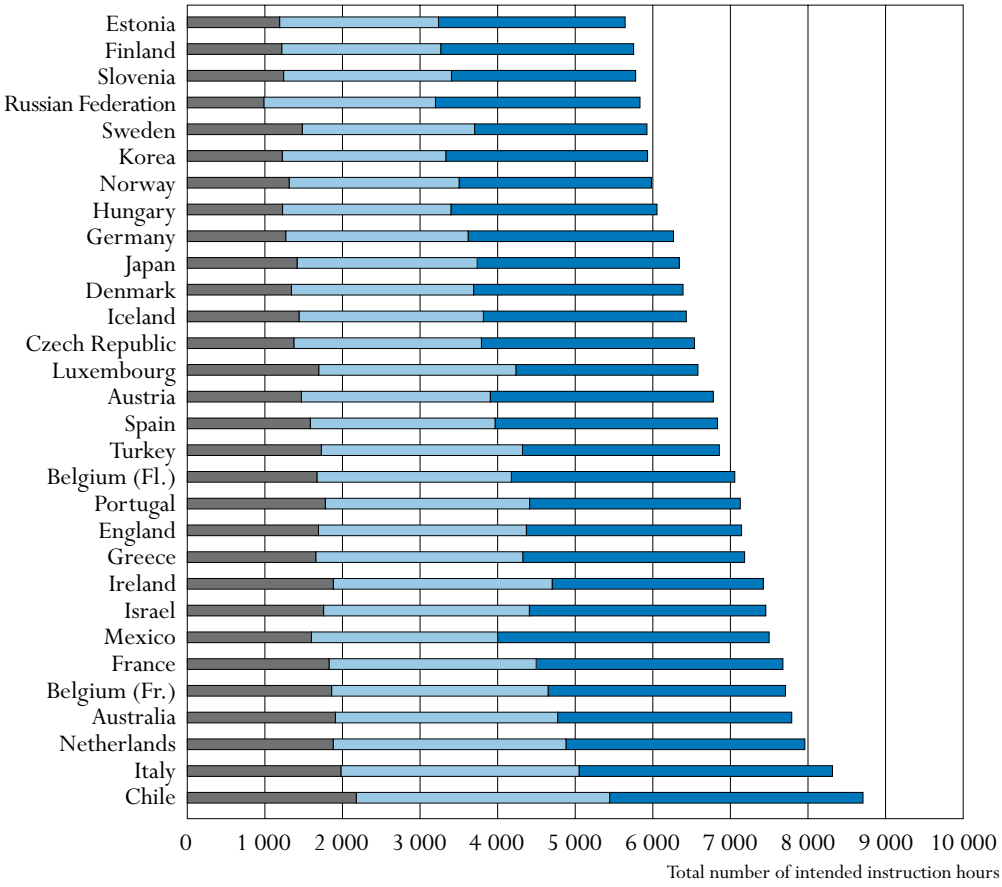
HOW MUCH TIME DO STUDENTS SPEND IN THE CLASSROOM?

This indicator examines the amount of instruction time students are expected to receive between the ages of 7 and 15. It also discusses how instruction time is allocated to different curriculum areas.

Key results

Chart D1.1. Total number of intended instruction hours in public institutions between the ages of 7 and 14 (2007)

Students in OECD countries are expected to receive, on average, 6 862 hours of instruction between the ages of 7 and 14, of which 1 580 between ages 7 and 8, 2 504 between ages 9 and 11, and 2 778 between ages 12 and 14. The large majority of intended hours of instruction are compulsory.



Countries are ranked in ascending order of total number of intended instruction hours.
Source: OECD. Table D1.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664775782328

Other highlights of this indicator

- In OECD countries, compulsory instruction time for 7-8 year-old students averages 769 hours per year and intended instruction time averages 790 hours per year for this age group. Students aged 9 to 11 receive about 41 compulsory hours more per year than 7-8 year-olds and students aged 12 to 14 receive just over 82 hours more per year than 9-11 year-olds. Similarly, students aged 9 to 11 receive about 45 intended hours more per year than 7-8 year-olds and students aged 12 to 14 receive just over 91 hours more per year than 9-11 year-olds.

- On average across OECD countries, the teaching of reading, writing and literature, mathematics and science represents 47% of the compulsory instruction time for 9-11 year-olds and just above 40% for 12-14 year-olds. For 9-11 year-olds, the proportion of compulsory curriculum devoted to reading, writing and literature varies widely, from 13% in Australia to 30% or more in France, Mexico and the Netherlands.

Policy context

Instruction time in formal classroom settings accounts for a large portion of the public investment in student learning and is a central component of effective schooling. The amount of instruction time available to students can determine the amount of formal classroom teaching they receive and therefore their opportunities for effective learning. Instruction time is the main factor in schools' operations. It is also central to education policy decision making. Matching resources with students' needs and making optimal use of time are major challenges for education policy. The main costs of education are teachers' work, institutional maintenance and other educational resources. The length of time during which these resources are made available to students (as partly shown in this indicator) is thus an important factor in the allocation of funding.

Countries make various choices concerning the overall length of time that should be devoted to instruction, and which subjects should be compulsory for students. These choices reflect national priorities and preferences for the education students receive at different ages and the emphasis placed on different subject areas. Countries usually have statutory or regulatory requirements regarding hours of instruction. These are most often stipulated as the minimum number of hours of instruction a school must offer. Central to the setting of minimum levels is the view that sufficient teaching time is essential to productive learning outcomes.

Evidence and explanations

What this indicator shows

Intended instruction time is an important indicator of students' opportunity to learn and of the public resources invested in education. This indicator captures intended instruction time, as established in public regulations, as a measure of exposure to learning in formal classroom settings. It does not show the actual number of hours of instruction received by students and does not cover learning outside of the formal classroom setting. Discrepancies may exist across countries between the regulatory minimum hours of instruction and the actual hours of instruction received by students. There is research showing that due to factors such as school timetable decisions, lesson cancellations and teacher absenteeism schools may not consistently reach the regulatory minimum instruction time (see Box D1.1 of *Education at a Glance 2007*).

The indicator also illustrates how minimum instruction times are allocated across different curricular areas. It shows the intended net hours of instruction for those grades in which the majority of students are between 7 and 15. Although the data are difficult to compare among countries because of different curriculum policies, they nevertheless provide an indication of how much formal instruction time is considered necessary for students to achieve the desired educational goals.

Total intended instruction time: an average of 6 862 hours between the ages of 7 and 14

Total intended instruction time is an estimate of the number of hours during which students are taught both compulsory and non-compulsory parts of the curriculum as per public regulations.

In OECD countries, intended instruction time for students between the ages of 7 and 14 averages a total of 6 862 hours. However, formal requirements regarding intended instruction time range from 5 644 hours in the partner country Estonia to over 8 000 hours in Italy and the partner

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country Chile. During these hours, schools are obliged to offer instruction in compulsory and non-compulsory subjects. The total intended instruction time for this age range is a good indicator of students' theoretical workload, but it cannot be interpreted as the actual instruction students receive during the years they spend in initial education.

In some countries with a heavier student workload, the age band of compulsory education is smaller and students drop out of the school system earlier; in other countries a more even distribution of student workload and study time over more years ultimately means a larger number of total instruction hours for all. Table D1.1 shows the age range for which over 90% of the population is in education and Chart D1.1 shows the total amount of intended instruction time students should receive between the ages of 7 and 14. Intended instruction time does not capture the quality of learning opportunities provided or the level or quality of the human and material resources involved. (For some insight into human resources, see Indicator D2, which shows the number of teachers relative to the student population).

In some countries, intended instruction time varies considerably among regions or types of schools. In many countries, local education authorities or schools can determine the number and allocation of hours of instruction. Additional teaching time is often planned for individual remedial teaching or curriculum enhancement. On the other hand, time may be lost due to student absences or a lack of qualified substitutes to replace absent teachers.

Annual instruction time should be examined together with the length of compulsory education, *i.e.* the period of time during which young people receive full-time educational support from public resources, and during which more than 90% of the population participates in education (see Indicator C1).

Compulsory instruction time: an average of 6 645 hours between the ages of 7 and 14

Total compulsory instruction time is an estimate of the number of hours during which students are taught both the compulsory core and compulsory flexible parts of the curriculum.

For 7-8 year-olds and 9-11 year-olds, total intended instruction time equals the total compulsory instruction time in most countries; this is less often the case for older age groups. However, intended instruction time is fully compulsory for all age groups between 7 and 14 years in the Czech Republic, Denmark, England, Germany, Greece, Iceland, Japan, Korea, Luxembourg, Mexico, the Netherlands, Norway, Spain and Sweden, as well as the partner countries Chile, Estonia, the Russian Federation and Slovenia. Except for England, Greece, Mexico, the Netherlands and the partner country Chile, these countries have a total length of intended instruction time that is below the OECD average. Except for Greece (as well as for Japan and the Netherlands: the two countries for which data are missing), intended instruction time is also fully compulsory at age 15 in these countries.

Within the formal education system, OECD countries report an average annual total compulsory instruction time in classroom settings of 769 hours for 7-8 year-olds, 810 hours for 9-11 year-olds and 892 hours for 12-14 year-olds. The average annual number of compulsory instruction hours is 921 for the typical programme in which most 15-year-olds are enrolled (Table D1.1).

D1

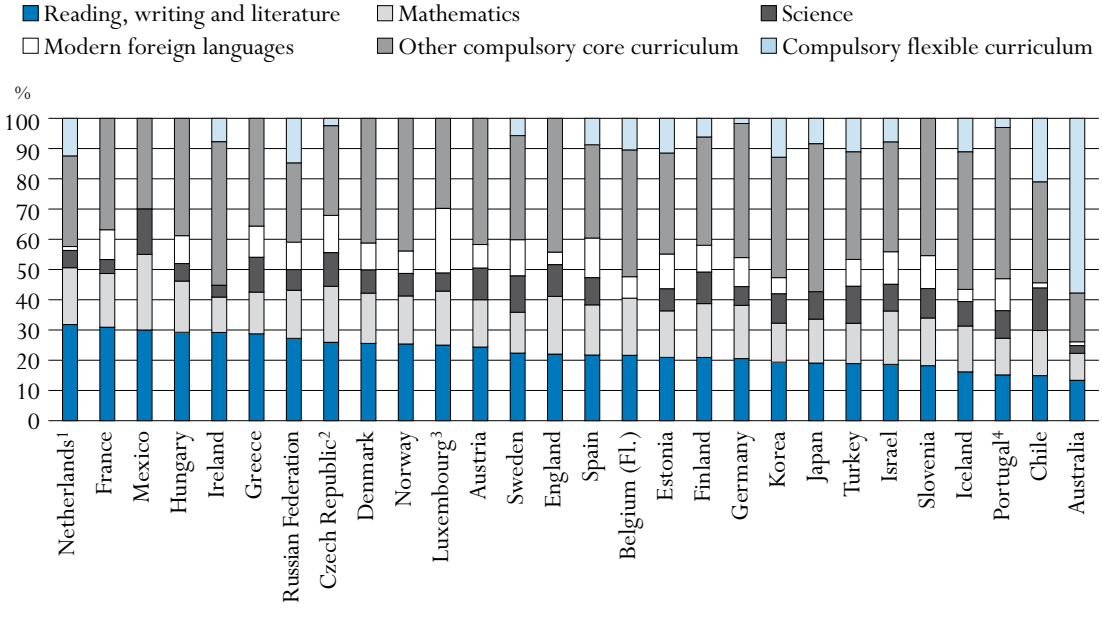
Teaching of reading and writing, mathematics and science: at least 40% of compulsory instruction time, on average, for 12-14 year-olds

In OECD countries, study areas for 9-11 year-olds are not necessarily organised as separate classes. Students at this age spend an average of 47% of the compulsory curriculum on three basic subject areas: reading, writing and literature (23%), mathematics (16%) and science (8%). On average, an additional 8% of the compulsory curriculum is devoted to modern foreign languages. Together with social studies, the arts and physical education, these seven study areas form the major part of the curriculum for this age cohort in all OECD and partner countries except Australia (Table D1.2a and Chart D1.2a).

On average, reading and writing account for the greatest proportion of the curriculum for 9-11 year-olds, but the differences among countries are greater than for other subjects; this subject area accounts for 13% of compulsory instruction time in Australia, compared with 30% or more in France, Mexico and the Netherlands. There are also sizeable variations in the time spent learning modern foreign languages, which accounts for 1% or less of compulsory instruction time in Australia, Japan, Mexico and the Netherlands but 21% of total compulsory instruction time in Luxembourg and over 10% in the Czech Republic, Portugal, Spain, Sweden and in the partner countries Estonia, Israel and Slovenia.

Chart D1.2a. Instruction time per subject as a percentage of total compulsory instruction time for 9-11 year-olds (2007)

Percentage of intended instruction time devoted to various subject areas within the total compulsory curriculum



1. Includes 11-year-olds only.
2. For 9-10 year-olds, social studies is included in science.
3. German as a language of instruction is included in "Reading, writing and literature" in addition to the mother tongue Luxemburgish.
4. Includes 10-11 year-olds only.

Countries are ranked in descending order of the proportion of intended instruction hours devoted to reading, writing and literature.

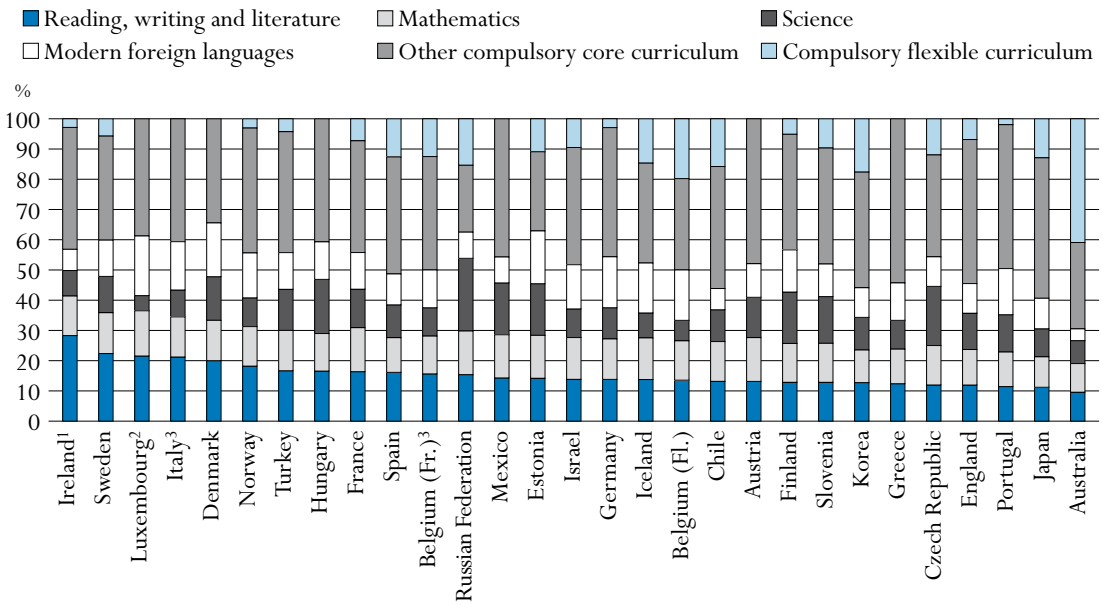
Source: OECD. Table D1.2a. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664775782328

In OECD countries, an average of 40% of the compulsory curriculum for 12-14 year-olds is devoted to three subject areas: reading, writing and literature (16%), mathematics (13%) and science (12%). For this age group, a relatively larger part of the curriculum is devoted to modern foreign languages (13%) and social studies (12%), and somewhat less time is devoted to the arts (8%). Together with physical education (8%), these seven study areas form part of the compulsory curriculum for lower secondary students in all OECD countries and partner countries (Table D1.2b and Chart D1.2b).

Chart D1.2b. Instruction time per subject as a percentage of total compulsory instruction time for 12-14 year-olds (2007)

Percentage of intended instruction time devoted to various subject areas within the total compulsory curriculum



1. For 13-14 year-olds, arts is included in non-compulsory curriculum.
2. German as a language of instruction is included in "Reading, writing and literature" in addition to the mother tongue Luxemburgish.
3. Includes 12-13 year-olds only.

Countries are ranked in descending order of the proportion of intended instruction hours devoted to reading, writing and literature.

Source: OECD. Table D1.2b. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664775782328

Among countries, the allocation of time for the different subjects within the compulsory curriculum for 12-14 year-olds varies less than for 9-11 year-olds. These differences reflect different national and curriculum priorities. The greatest variation is again in reading and writing, which ranges from 10% or less of compulsory instruction time in Australia to 28% in Ireland (where reading and writing includes work in both English and Irish).

There is also substantial variation in the percentage of compulsory instruction time devoted to particular subjects for 9-11 year-olds compared to 12-14 year-olds. On average among OECD countries, 12-14 year-olds spend one-third less time studying reading, writing and literature

than 9-11 year-olds. However, the reverse is true for science, social studies, modern foreign languages, technology and practical and vocational skills.

These differences are larger in some countries than in others. The percentage of compulsory instruction time devoted to reading, writing and literature for 12-14 year-olds is equal to or less than one-half that for 9-11 year-olds in the Czech Republic, Greece, and Mexico. Yet in Ireland and Sweden, the difference is less than 5%. Clearly, countries place different emphases both on subjects and on when they should be taught to students.

Among OECD countries, the non-compulsory part of the curriculum comprises on average 4% to 5% of the total intended instruction time for 9-11 year-olds as well as for 12-14 year-olds. Nevertheless, a considerable amount of additional non-compulsory instruction time is sometimes provided. For 9-11 year-olds, all intended instruction time is compulsory in most countries, but students in Belgium (French Community) and in Italy spend over an additional 11% and students in Hungary and Turkey up to an additional 20% of their time on non-compulsory studies. For 12-14 year-olds, non-compulsory instruction time is a feature in Australia, Austria, Belgium (French Community), Finland, France, Hungary, Ireland, Italy, Portugal and Turkey, and ranges from 3% in Portugal to 32% in Hungary (Table D1.2a and Table D1.2b).

On average, 4% of compulsory instruction time belongs to the flexible part of the curriculum in the grades where most students are 9 to 11 years of age; the corresponding proportion is 8% for students aged 12 to 14. Most OECD countries define the number of hours of compulsory instruction. Within the compulsory part of the curriculum, students have varying degrees of freedom to choose the subjects they want to study. Australia allows the greatest flexibility in the compulsory curriculum with 58% for 9-11 year-olds and 41% for 12-14 year-olds. Several other countries allow 10% or more of flexibility in the compulsory curriculum for 12-14 year-olds (Belgium, the Czech Republic, Iceland, Japan, Korea and Spain, and the partner countries Chile, Estonia, the Russian Federation and Slovenia) (Table D1.2a and Table D1.2b).

Definitions and methodologies

Data on instruction time are from the 2008 OECD-INES Survey on Teachers and the Curriculum and refer to the school year 2006/07.

Instruction time for 7-15 year-olds refers to the formal number of 60-minute hours per school year organised by the school for class instructional activities for students in the reference school year 2006/07. For countries with no formal policy on instruction time, the number of hours is estimated from survey data. Hours lost when schools are closed for festivities and celebrations, such as national holidays, are excluded. Intended instruction time does not include non-compulsory time outside the school day, homework, individual tutoring, or private study done before or after school.

Intended instruction time refers to the number of hours per year during which students receive instruction in the compulsory and non-compulsory parts of the curriculum.

The compulsory curriculum refers to the amount and allocation of instruction time that almost every public school must provide and almost all public-sector students must attend. The measurement of the time devoted to specific study areas (subjects) focuses on the minimum

common core rather than on the average time spent, since the data sources (policy documents) do not allow for more precise measurement. The total compulsory curriculum comprises the compulsory core curriculum as well as the compulsory flexible curriculum.

The non-compulsory part of the curriculum refers to the average time of instruction to which students are entitled beyond the compulsory hours of instruction. These subjects often vary from school to school or from region to region, and may take the form of non-compulsory (elective) subjects.

In Table D1.1, typical instruction time for 15-year-olds refers to the programme in which most students at this age are enrolled. The programme may take place in lower or upper secondary education, and in most countries consists of a general programme. If the system channels students into different programme types at this age, the average instruction time may have been estimated for the most important mainstream programmes and weighted by the proportion of students in the grade in which most 15-year-olds are enrolled. When vocational programmes are also taken into account in typical instruction time, only the school-based part of the programme should be included in the calculations.

Instruction time for the least demanding programmes refers to programmes for students who are least likely to continue studying beyond the mandatory school age or beyond lower secondary education. Such programmes may or may not exist depending on a country's streaming and selection policies. In many countries students are offered the same amount of instruction time in all or most programmes, but there is flexibility in the choice of study areas or subjects. Often such choices have to be made quite early in the student's school career if programmes are long and differ substantially.

Further references

Specific notes on definitions and methodologies for each country related to this indicator are given in Annex 3 at *www.oecd.org/edu/eag2009*.

D1

Table D1.1.

Compulsory and intended instruction time in public institutions (2007)

Average number of hours per year of total compulsory and non-compulsory instruction time in the curriculum for 7-8, 9-11, 12-14 and 15-year-olds

		Age range at which over 90% of the population are enrolled	Average number of hours per year of total compulsory instruction time					Average number of hours per year of total intended instruction time				
			Ages 7-8	Ages 9-11	Ages 12-14	Age 15 (typical programme)	Age 15 (least demanding programme)	Ages 7-8	Ages 9-11	Ages 12-14	Age 15 (typical programme)	Age 15 (least demanding programme)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OECD countries	**Australia**	5 - 16	954	955	962	938	938	954	955	1006	993	993
	Austria	5 - 16	690	767	913	1005	960	735	812	958	1050	1005
	Belgium (Fl.)	3 - 17	a	a	a	a	a	835	835	960	960	450
	Belgium (Fr.)[1]	3 - 17	840	840	960	m	m	930	930	1020	m	m
	Czech Republic	5 - 17	687	806	915	1030	439	687	806	915	1030	439
	Denmark	3 - 16	671	783	900	930	900	671	783	900	930	900
	England	4 - 16	846	893	925	950	a	846	893	925	950	a
	Finland	6 - 18	608	640	777	856	a	608	683	829	913	a
	France	3 - 17	913	890	966	1036	a	913	890	1060	1142	a
	Germany	4 - 17	634	784	883	895	m	634	784	883	895	m
	Greece	6 - 15	828	889	953	1117	958	828	889	953	1330	1170
	Hungary	4 - 17	555	601	671	763	763	614	724	885	1106	1106
	Iceland	3 - 16	720	792	872	888	a	720	792	872	888	a
	Ireland	5 - 18	941	941	848	802	713	941	941	907	891	891
	Italy	3 - 15	891	913	1001	1089	m	990	1023	1089	1089	m
	Japan	4 - 17	707	774	868	m	a	707	774	868	m	a
	Korea	6 - 17	612	703	867	1020	a	612	703	867	1020	a
	Luxembourg	4 - 15	847	847	782	750	a	847	847	782	750	a
	Mexico	5 - 14	800	800	1167	1058	a	800	800	1167	1058	a
	Netherlands	4 - 17	940	1000	1027	m	a	940	1000	1027	m	a
	New Zealand	4 - 15	m	m	m	m	m	m	m	m	m	m
	Norway	4 - 17	656	730	826	855	a	656	730	826	855	a
	Poland	6 - 18	m	m	m	m	m	m	m	m	m	m
	Portugal	5 - 16	855	849	880	821	m	889	878	905	872	m
	Scotland	4 - 16	a	a	a	a	a	a	a	a	a	a
	Slovak Republic	6 - 17	m	m	m	m	m	m	m	m	m	m
	Spain	3 - 16	793	794	956	979	978	793	794	956	979	978
	Sweden	3 - 18	741	741	741	741	a	741	741	741	741	a
	Switzerland	5 - 16	m	m	m	m	m	m	m	m	m	m
	Turkey	7 - 12	720	720	750	810	a	864	864	846	810	a
	United States	6 - 16	m	m	m	m	m	m	m	m	m	m
	OECD average		***769***	***810***	***892***	***921***	***831***	***790***	***835***	***926***	***966***	***881***
	EU 19 average		***781***	***822***	***888***	***918***	***816***	***802***	***847***	***928***	***977***	***867***
Partner countries	**Brazil**	7 - 16	m	m	m	m	m	m	m	m	m	m
	Chile	6 - 16	1089	1089	1089	1203	1203	1089	1089	1089	1203	1203
	Estonia	6 - 16	595	683	802	840	m	595	683	802	840	m
	Israel	5 - 17	878	867	966	1040	1015	878	884	1016	1089	1064
	Russian Federation	7 - 15	493	737	879	912	m	493	737	879	912	m
	Slovenia	6 - 17	621	721	791	908	888	621	721	791	908	888

1. "Ages 12-14" covers ages 12-13 only.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664775782328

Table D1.2a.

Instruction time per subject as a percentage of total compulsory instruction time for 9-11 year-olds (2007)

Percentage of intended instruction time devoted to various subject areas within the total compulsory curriculum

	Compulsory core curriculum															
	Reading, writing and literature	Mathematics	Science	Social studies	Modern foreign languages	Ancient Greek and/ or Latin	Technology	Arts	Physical education	Religion	Practical and vocational skills	Other	Total compulsory core curriculum	Compulsory flexible curriculum	Total compulsory curriculum	Non-compulsory curriculum
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD countries																
Australia[1]	13	9	3	3	1	n	3	4	4	1	n	1	**42**	58	**100**	n
Austria	24	16	10	3	8	n	n	18	10	8	x(13)	3	**100**	x(13)	**100**	6
Belgium (Fl.)[1]	22	19	x(12)	x(12)	7	n	n	10	7	7	n	18	**89**	11	**100**	n
Belgium (Fr.)[1]	x(12)	x(12)	x(12)	x(12)	5	n	x(12)	x(12)	7	7	x(12)	81	**100**	n	**100**	11
Czech Republic[2]	26	19	11	9	12	n	n	14	7	n	n	n	**98**	2	**100**	n
Denmark	26	17	8	4	9	n	n	20	10	4	n	3	**100**	n	**100**	n
England	22	19	10	10	4	n	10	9	7	5	n	3	**100**	n	**100**	n
Finland	21	18	10	2	9	n	n	19	9	5	n	n	**94**	6	**100**	7
France	31	18	5	10	10	n	3	11	13	n	n	n	**100**	n	**100**	n
Germany	20	18	6	7	10	n	1	15	11	7	n	4	**98**	2	**100**	n
Greece	29	14	11	11	10	n	n	8	7	7	n	2	**100**	n	**100**	n
Hungary	29	17	6	7	9	n	n	14	12	n	5	2	**100**	n	**100**	20
Iceland	16	15	8	8	4	n	6	12	9	3	5	2	**89**	11	**100**	n
Ireland	29	12	4	8	x(14)	n	n	12	4	10	n	14	**92**	8	**100**	n
Italy[3]	a	a	a	a	a	a	a	a	a	a	a	a	**a**	a	**100**	12
Japan	19	15	9	9	n	n	n	10	9	n	n	21	**92**	8	**100**	m
Korea	19	13	10	10	5	n	2	13	10	n	2	3	**87**	13	**100**	n
Luxembourg[4]	25	18	6	2	21	n	n	11	10	7	n	n	**100**	n	**100**	n
Mexico	30	25	15	20	n	n	n	5	5	n	n	n	**100**	n	**100**	n
Netherlands[5]	32	19	6	6	1	n	n	9	7	5	3	n	**88**	13	**100**	n
New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
Norway	25	16	7	9	7	n	n	15	9	8	n	3	**100**	n	**100**	n
Poland	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
Portugal[6]	15	12	9	6	11	n	x(7)	18	9	n	n	17	**97**	3	**100**	5
Scotland	a	a	a	a	a	a	a	a	a	a	a	a	**a**	a	**a**	a
Slovak Republic	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
Spain	22	17	9	9	13	n	n	11	11	x(14)	n	n	**91**	9	**100**	n
Sweden	22	14	12	13	12	n	x(3)	7	8	x(4)	7	n	**94**	6	**100**	n
Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
Turkey	19	13	12	10	9	n	n	7	4	7	2	6	**89**	11	**100**	20
United States	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
OECD average[1]	***23***	***16***	***8***	***8***	***8***	***n***	***1***	***12***	***8***	***4***	***1***	***4***	***91***	***4***	***100***	***4***
EU 19 average[1]	***25***	***16***	***8***	***7***	***9***	***n***	***1***	***13***	***9***	***4***	***1***	***3***	***97***	***3***	***100***	***4***
Partner countries																
Brazil	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
Chile	15	15	14	4	2	n	7	10	7	5	n	1	**79**	21	**100**	n
Estonia	21	15	7	6	12	n	4	9	10	n	n	4	**88**	12	**100**	n
Israel	19	18	9	6	11	n	n	6	6	6	4	9	**92**	8	**100**	2
Russian Federation	27	16	7	6	9	n	7	7	7	n	n	n	**85**	15	**100**	n
Slovenia	18	16	10	8	11	n	2	11	11	n	3	10	**100**	n	**100**	n

1. Australia, Belgium (Fl.) and Belgium(Fr.) are not included in the averages.
2. For 9-10 year-olds, social studies is included in science.
3. For 9-10 year-olds the curriculum is largely flexible, for 11-year-olds it is about the same as for 12-13 year-olds.
4. German as a language of instruction is included in "Reading, writing and literature" in addition to the mother tongue Luxemburgish.
5. Includes 11-year-olds only.
6. Includes 10-11 year-olds only.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664775782328

D1

Table D1.2b.

Instruction time per subject as a percentage of total compulsory instruction time for 12-14 year-olds (2007)

Percentage of intended instruction time devoted to various subject areas within the total compulsory curriculum

		Compulsory core curriculum															
		Reading, writing and literature	Mathematics	Science	Social studies	Modern foreign languages	Ancient Greek and/ or Latin	Technology	Arts	Physical education	Religion	Practical and vocational skills	Other	Total compulsory core curriculum	Compulsory flexible curriculum	Total compulsory curriculum	Non-compulsory curriculum
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
OECD countries	**Australia**	10	9	8	7	4	n	6	6	7	1	n	3	**59**	41	**100**	5
	Austria	13	14	13	12	11	1	n	16	10	7	2	n	**100**	x(13)	**100**	5
	Belgium (Fl.)	14	13	7	9	17	n	4	4	6	6	1	n	**80**	20	**100**	n
	Belgium (Fr.)[1]	16	13	9	13	13	n	3	3	9	6	n	3	**88**	13	**100**	6
	Czech Republic	12	13	20	16	10	n	3	8	7	n	n	n	**88**	12	**100**	n
	Denmark	20	13	14	9	18	n	n	11	8	3	n	3	**100**	n	**100**	n
	England	12	12	12	12	10	n	11	10	7	4	n	3	**93**	7	**100**	n
	Finland	13	13	17	7	14	n	n	15	7	5	4	n	**95**	5	**100**	7
	France	16	15	13	13	12	n	6	7	11	n	n	n	**93**	7	**100**	10
	Germany	14	13	10	12	17	n	3	10	9	5	2	2	**97**	3	**100**	n
	Greece	12	11	10	10	12	n	5	6	8	6	1	19	**100**	n	**100**	n
	Hungary	17	12	18	12	12	n	3	10	9	n	3	3	**100**	n	**100**	32
	Iceland	14	14	8	6	17	n	4	7	8	2	4	3	**85**	15	**100**	n
	Ireland[2]	28	13	8	17	7	n	x(16)	4	5	9	x(16)	5	**97**	3	**100**	7
	Italy[1]	21	13	9	11	16	n	7	13	6	3	n	n	**100**	n	**100**	14
	Japan	11	10	9	9	10	n	3	7	9	n	n	18	**87**	13	**100**	m
	Korea	13	11	11	10	10	n	4	8	8	n	4	5	**82**	18	**100**	n
	Luxembourg[3]	22	15	5	10	20	n	n	10	8	6	n	5	**100**	n	**100**	n
	Mexico	14	14	17	23	9	n	n	6	6	n	9	3	**100**	n	**100**	n
	Netherlands	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
	New Zealand	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
	Norway	18	13	10	10	15	n	n	11	9	7	n	5	**97**	3	**100**	n
	Poland	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
	Portugal[4]	11	11	12	13	15	n	4	7	9	n	n	15	**98**	2	**100**	3
	Scotland	a	a	a	a	a	a	a	a	a	a	a	a	**a**	a	**a**	a
	Slovak Republic	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
	Spain	16	11	11	10	10	n	8	11	7	x(14)	x(14)	3	**87**	13	**100**	n
	Sweden	22	14	12	13	12	n	x(3)	7	8	x(4)	7	n	**94**	6	**100**	n
	Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
	Turkey	17	13	14	12	12	n	n	4	7	5	4	7	**96**	4	**100**	13
	United States	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
	OECD average	***16***	***13***	***12***	***12***	***13***	***n***	***3***	***8***	***8***	***3***	***2***	***4***	***92***	***8***	***100***	***5***
	EU 19 average	***16***	***13***	***12***	***12***	***13***	***n***	***4***	***9***	***8***	***4***	***1***	***4***	***95***	***6***	***100***	***6***
Partner countries	**Brazil**	m	m	m	m	m	m	m	m	m	m	m	m	**m**	m	**m**	m
	Chile	13	13	11	11	7	n	5	10	5	5	n	4	**84**	16	**100**	m
	Estonia	14	14	17	7	17	n	5	7	7	n	n	n	**89**	11	**100**	m
	Israel	14	14	9	7	15	n	5	5	5	5	5	6	**91**	9	**100**	m
	Russian Federation	15	14	24	9	9	n	3	4	6	n	1	n	**85**	15	**100**	m
	Slovenia	13	13	15	15	11	n	2	6	6	n	n	9	**90**	10	**100**	m

1. Includes 12-13 year-olds only.
2. For 13-14 year-olds, arts is included in non-compulsory curriculum.
3. German as a language of instruction is included in "Reading, writing and literature" in addition to the mother tongue Luxemburgish.
4. Technology is included in arts for 14-year-olds.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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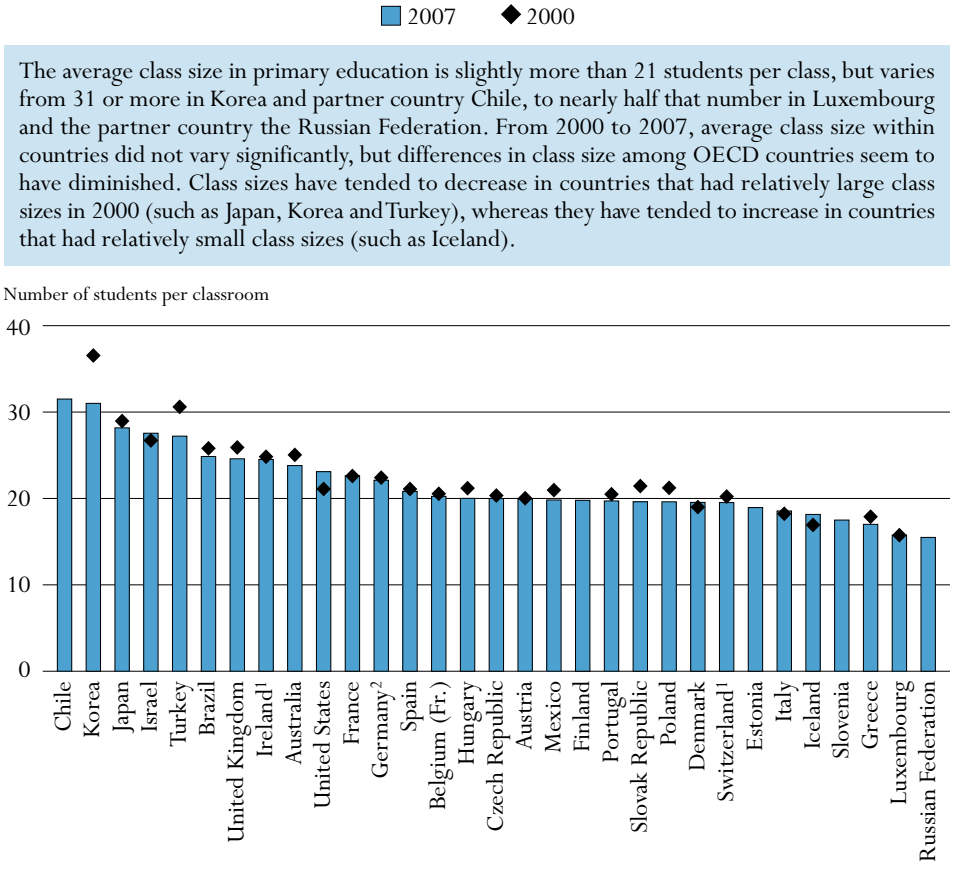
WHAT IS THE STUDENT-TEACHER RATIO AND HOW BIG ARE CLASSES?

This indicator examines the number of students per class at the primary and lower secondary levels, the ratio of students to teaching staff at all levels, including a breakdown by type of institutions, and the breakdown of educational personnel between teaching and non-teaching staff. Class size and student-teacher ratios are much discussed aspects of the education students receive and – along with students' total instruction time (see Indicator D1), teachers' average working time (see Indicator D4) and the division of teachers' time between teaching and other duties – are among the determinants of the size of countries' teaching force.

Key results

Chart D2.1. Average class size in primary education (2000, 2007)



1. Public institutions only.
2. Years of reference 2001 and 2007.

Countries are ranked in descending order of average class size in primary education in 2007.

Source: OECD. 2007 data: Table D2.1. 2000 data: Table D2.5, available on line. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664810147180

Other highlights of this indicator

- The average class size in lower secondary education is 24 students per class, but varies from about 30 or more in Japan, Korea and the partner countries Chile and Israel, to 20 or fewer in Denmark, Finland, Iceland, Luxembourg and Switzerland (public institutions) and the partner countries the Russian Federation and Slovenia.
- The number of students per class increases by an average of nearly three between primary and lower secondary education, but ratios of students to teaching staff tend to decrease with increasing levels of education owing to more annual instruction time, although this pattern is not uniform among countries.
- On average in OECD countries, the availability of teaching resources relative to numbers of students in secondary education is more favourable in private than in public institutions. This is most striking in Mexico where, at the secondary level, there are around 15 more students per teacher in public institutions than in private ones. On average across OECD countries, at the lower secondary level, there is one student more per class in public than in private institutions.
- There are on average more than 10 more educational personnel per 1 000 students in tertiary education than in primary and secondary education. Non-teaching staff represent on average 27% of the total teaching and non-teaching staff in primary and secondary schools and about 40% of the total teaching and non-teaching staff at the tertiary level.

Policy context

Class size, education quality and education systems

Class size is a hotly debated topic and an important element of education policy in many OECD countries. Smaller classes are often perceived as allowing teachers to focus more on the needs of individual students and reducing the amount of class time they spend dealing with disruptions. Smaller class sizes may also influence parents when they choose schools for their children. In this respect, class size may be viewed as an indicator of the quality of the school system.

Yet evidence on the effects of differences in class size upon student performance is mixed. In what has evolved as a contentious area of research, and one which has produced little in the way of consistent results, there is some evidence that smaller classes may have an impact upon specific groups of students (*e.g.* disadvantaged students) (*e.g.* Krueger, 2002).

A further reason for the mixed evidence on the impact of class size may be that class size does not vary enough to estimate the true effects of this variable on student performance. In addition, policies that group students who perform less satisfactorily into smaller classes in order to devote more attention to individual students may reduce the observed performance gains that may otherwise be expected from smaller classes. Finally, the fact that the relationship between class size and student performance is often non-linear makes the effects difficult to estimate.

Many factors influence the interaction between teachers and students, and class size is only one of them. Other influences include the number of classes or students for which a teacher is responsible, the subject taught, the division of the teacher's time between teaching and other duties, the grouping of students within classes, the pedagogical approach employed and the practice of team teaching.

The ratio of students to teaching staff is also an important indicator of the resources devoted to education. A smaller ratio of students to teaching staff may have to be weighted against higher salaries for teachers, increased professional development and teacher training, greater investment in teaching technology, or more widespread use of assistant teachers and other paraprofessionals whose salaries are often considerably lower than those of qualified teachers. Moreover, as larger numbers of children with special educational needs are integrated into normal classes, more use of specialised personnel and support services may limit the resources available for reducing the ratio of students to teaching staff.

The ratio of students to teaching staff is obtained by dividing the number of full-time equivalent students at a given level of education by the number of full-time equivalent teachers at that level and in similar types of institutions. However, this ratio does not take into account instruction time compared to the length of a teacher's working day, nor how much time teachers spend teaching and therefore it cannot be interpreted in terms of class size (Box D2.1).

The number of teaching and non-teaching staff employed in education per 1 000 students is an indicator of the proportion of a country's human resources devoted to educating the population. The number of persons employed as either teachers or educational support personnel, and the level of compensation of educational staff (see Indicator D3), are both important factors affecting the financial resources that countries commit to education.

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Evidence and explanations

Average class size in primary and lower secondary education

At the primary level, the average class size in OECD countries is slightly more than 21 students per class, but this number varies widely between countries. It ranges from 31 or more students per primary class in Korea and partner country Chile to fewer than 20 in Austria, the Czech Republic, Denmark, Finland, Greece, Iceland, Italy, Luxembourg, Mexico, Poland, Portugal, the Slovak Republic, and Switzerland (public institutions) and the partner countries Estonia, the Russian Federation and Slovenia. At the lower secondary level (in general programmes), the average class size in OECD countries is 24 students per class, although this number varies from nearly 36 students per class in Korea to 20 or fewer in Denmark, Finland, Iceland, Luxembourg and Switzerland (public institutions) and the partner countries the Russian Federation and Slovenia (Table D2.1).

Box D2.1. Relationship between class size and ratio of students to teaching staff

The number of students per class results from a number of different elements: the ratio of students to teaching staff, the number of classes or students for which a teacher is responsible, the instruction time of students compared to the length of teachers' working days, the proportion of time teachers spend teaching, the grouping of students within classes and team teaching.

For example, in a school of 48 full-time students and 8 full-time teachers, the ratio of students to teaching staff is 6. If teachers' working week is estimated to be 35 hours, including 10 hours teaching, and if instruction time for each student is 40 hours per week, then whatever the grouping of students in this school, average class size can be estimated as follows:

Estimated class size = 6 students per teacher * (40 hours of instruction time per student/ 10 hours of teaching per teacher) = 24 students.

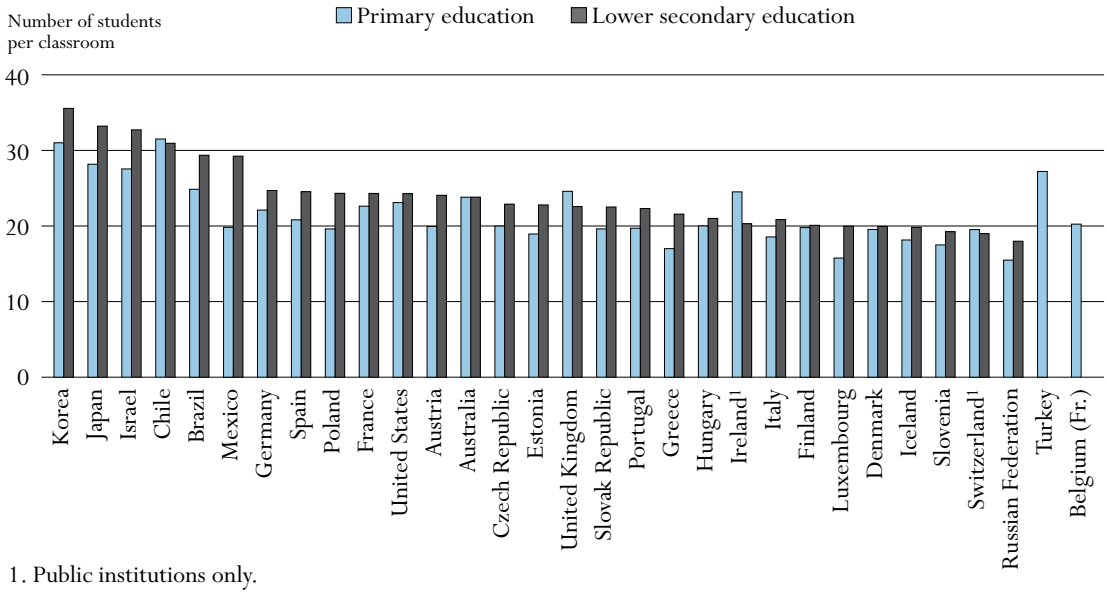
Using a different approach, the class size presented in Table D2.1 is defined as the division of students who are following a common course of study, based on the highest number of common courses (usually compulsory studies), and excludes teaching in sub-groups. Thus, the estimated class size will be close to the average class size of Table D2.1 where teaching in sub-groups is less frequent (as is the case in primary and lower secondary education).

Because of these definitions, similar student-teacher ratios between countries can result in different class sizes. For example, in lower secondary education, Austria and the United States have similar average class sizes (24.1 students in Austria and 24.3 in the United States – Table D2.1), but the ratio of students to teaching staff differs substantially, with 10.3 students per teaching staff in Austria compared to 14.7 in the United States (Table D2.2). The explanation may lie in the higher number of teaching hours required of teachers in the United States (607 in Austria and 1 080 in the United States – Table D4.1).

The number of students per class tends to increase, on average, by nearly three students between primary and lower secondary education. In Austria, Greece, Japan, Korea, Luxembourg, Mexico and Poland, and the partner countries Brazil and Israel, the increase in average class size exceeds four students, while Ireland (public institutions), the United Kingdom and, to a lesser extent, partner country Chile show a drop in the number of students per class between these two levels of education (Chart D2.2). The indicator on class size is limited to primary and lower secondary education because class sizes are difficult to define and compare at higher levels, where students often attend several different classes, depending on the subject area.

Between 2000 and 2007, average class size in primary education did not vary significantly (21.4 in 2007 as compared to 22.0 in 2000). However, among countries with comparable data, class size decreased in countries that had larger class sizes in 2000 (for example in Korea, Japan and Turkey), whereas class size increased (or stayed constant) in countries that had the smallest class sizes in 2000 (Iceland, Italy and Luxembourg). At the secondary level of education, variations in class sizes between 2000 and 2007 follow a similar trend, leading as well to a narrowing of the range of class sizes among countries (Table D2.1, and Table D2.5 available on line).

Chart D2.2. Average class size in educational institutions, by level of education (2007)



1. Public institutions only.

Countries are ranked in descending order of average class size in lower secondary education.

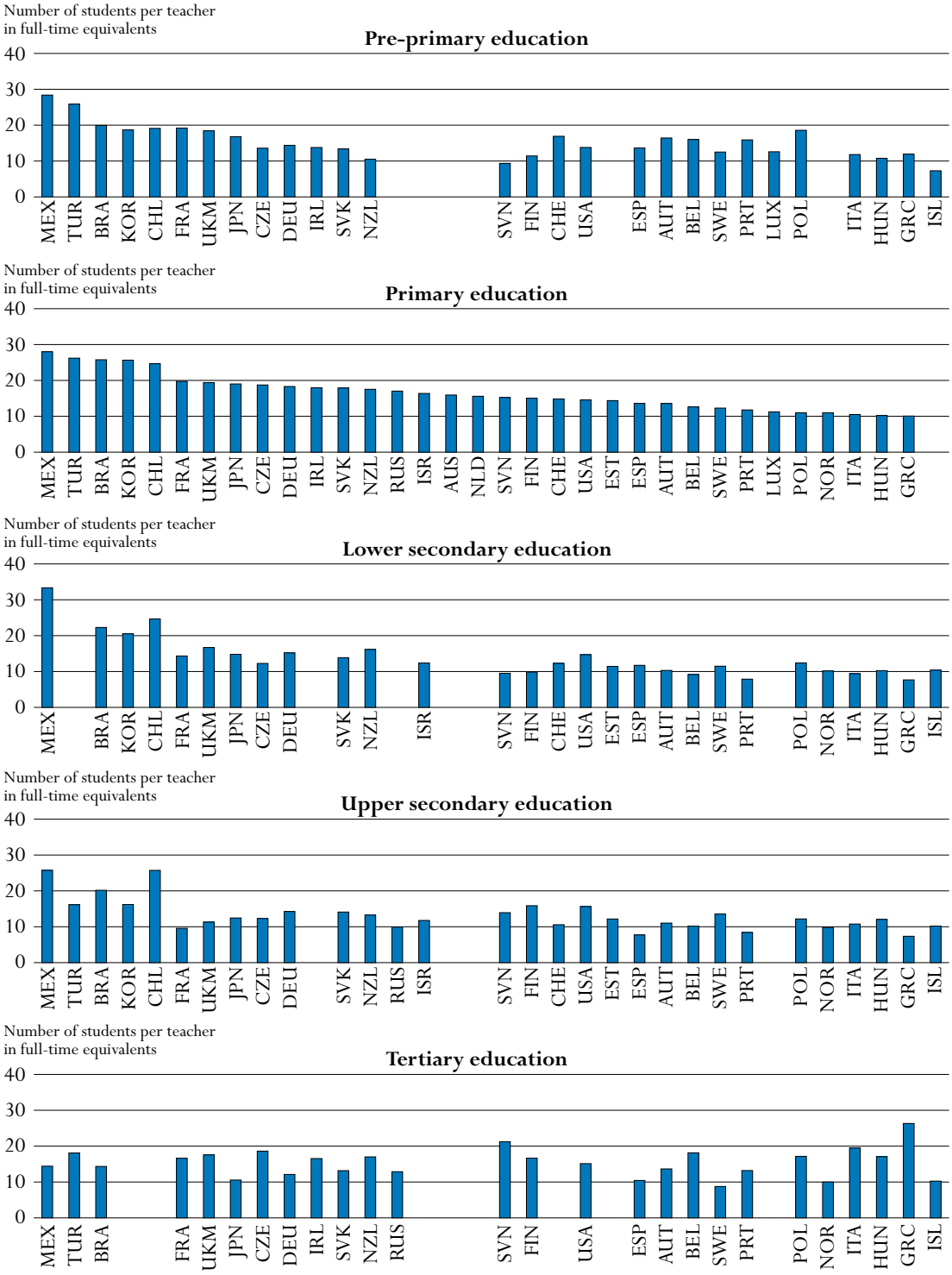
Source: OECD. Table D2.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664810147180

Ratio of students to teaching staff

In primary education, the ratio of students to teaching staff, expressed in full-time equivalents, ranges from 25 students or more per teacher in Korea, Mexico and Turkey and in the partner country Brazil to fewer than 11 in Greece, Hungary and Italy. The OECD average in primary education is 16 students per teacher (Chart D2.3).

Chart D2.3. Ratio of students to teaching staff in educational institutions, by level of education (2007)



Please refer to the Reader's Guide for the list of country codes for country names used in this chart.
Countries are ranked in descending order of students to teaching staff ratios in primary education.
Source: OECD. Table D2.2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/664810147180

There is similar variation among countries in the ratio of students to teaching staff at the secondary level, ranging from 30 students per full-time equivalent teacher in Mexico to fewer than 11 in Austria, Belgium, Greece, Iceland, Italy, Luxembourg, Norway, Portugal and Spain and in the partner country the Russian Federation. On average among OECD countries, the ratio of students to teaching staff at the secondary level is 13, which is close to the ratios in Australia (12), the Czech Republic (12), Finland (13), France (12), Ireland (13), Japan (14), Poland (12), the Slovak Republic (14), Sweden (13), Switzerland (12) and the United Kingdom (14), and the partner countries Estonia (12), Israel (12) and Slovenia (12) (Table D2.2).

As the difference in the mean ratios of students to teaching staff between primary and secondary education indicates, there are fewer full-time equivalent students per full-time equivalent teacher at higher levels of education. The ratio of students to teaching staff decreases between primary and secondary levels of education, despite a tendency for class sizes to increase. This was found to be true in all but five OECD countries (Hungary, Mexico, Poland, the United Kingdom and the United States), and the partner country Chile.

The decrease in the ratio of students to teaching staff from the primary to the secondary level reflects differences in annual instruction time, which tends to increase with the level of education. It may also result from delays in matching the teaching force to demographic changes, or from differences in teaching hours for teachers at different levels. The general trend is consistent among countries, but it is not obvious from an educational perspective why a smaller ratio of students to teaching staff should be more desirable at higher levels of education (Table D2.2).

The ratios of students to teaching staff in pre-primary education are shown in Table D2.2. For the pre-primary level, information is also presented on the ratio of students to contact staff (teachers and teachers' aides). Some countries make extensive use of teachers' aides at the pre-primary level. Eight OECD countries and two partner countries reported smaller ratios of students to contact staff (column 1 of Table D2.2) than of students to teaching staff. For countries such as the Czech Republic, Japan, the Slovak Republic and the United Kingdom and partner country Chile, this difference is not substantial. However, in Austria, Germany, Ireland and the United States, as well as in the partner country Brazil, there are larger numbers of teachers' aides. As a result, the ratios of students to contact staff are substantially lower than ratios of students to teaching staff, particularly in Ireland and in the partner country Brazil.

At the tertiary level, the ratio of students to teaching staff ranges from 26 students per teacher in Greece to 11 or fewer in Iceland, Japan, Norway, Spain and Sweden (Table D2.2). Such comparisons in tertiary education should be made with caution, however, since it is still difficult to calculate full-time equivalent students and teachers on a comparable basis at this level.

In 12 out of the 15 OECD and partner countries with comparable data, the ratio of students to teaching staff is lower in the more occupationally specific tertiary-type B programmes than in tertiary-type A and advanced research programmes (Table D2.2). Turkey is the only country with a significantly higher ratio in tertiary-type B programmes.

Teaching resources in public and private institutions

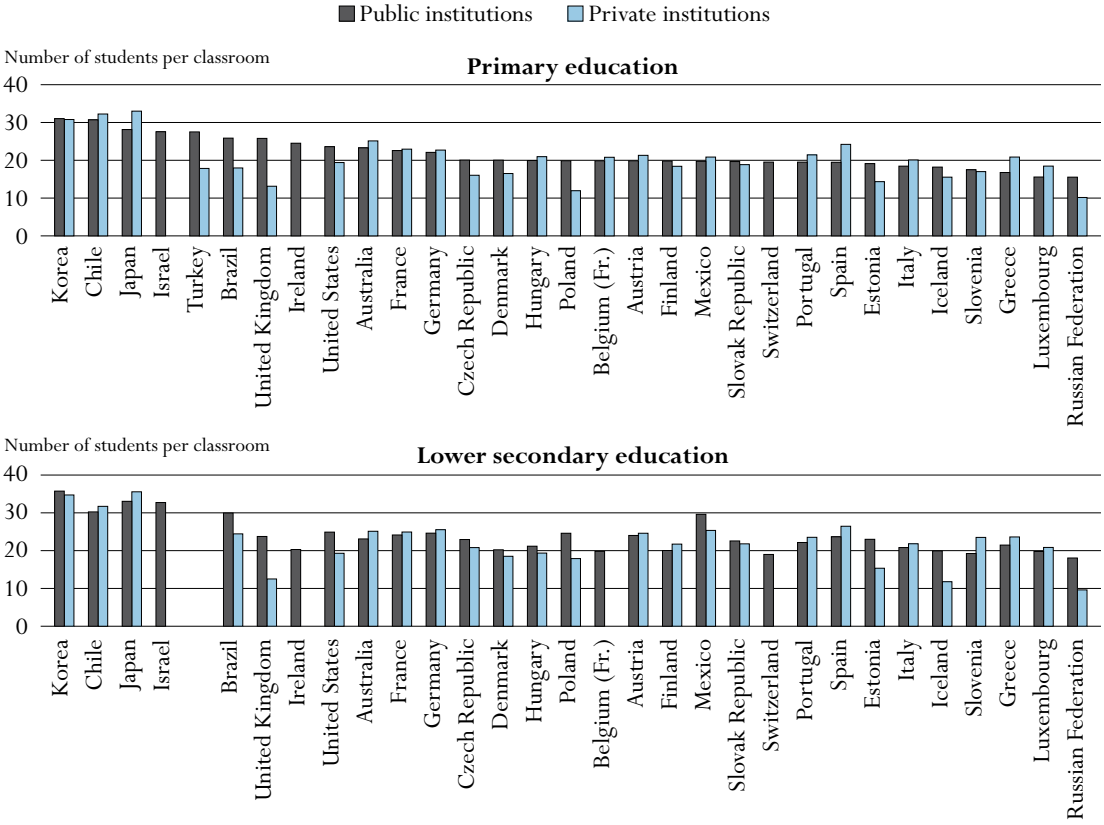
Table D2.3 focuses on the secondary level and illustrates teaching resources in public and private institutions by comparing the ratio of students to teaching staff for the two types of providers.

On average among OECD countries and partner countries for which data are available, the ratios of students to teaching staff are smaller in private institutions at both lower secondary and upper secondary levels, with one more student per teacher in public institutions than in private institutions at the overall secondary level. The largest differences are in Mexico, the United Kingdom and the partner country Brazil where, at the lower secondary level, there are at least 11 more students per teacher in public than in private institutions. The difference in Mexico at the upper secondary level is even larger.

In some countries, ratios of students to teaching staff are smaller in the public sector than in the private sector. This is most pronounced at the lower secondary level in Spain where there are some 16 students per teacher in private institutions compared with only 10 in public institutions.

Among OECD countries for which data are available, average class sizes do not differ between public and private institutions by more than one student per class for both primary and lower secondary education (Chart D2.4 and Table D2.1). However, this disguises marked differences among countries. At the primary level, in the Czech Republic, Poland, Turkey, the United Kingdom and the United States, and in the partner countries Brazil, Estonia and the Russian Federation, for example, average class sizes in public institutions are higher by four students or more per class.

Chart D2.4. Average class size in public and private institutions, by level of education (2007)



Countries are ranked in descending order of average class size in public institutions in primary education.
Source: OECD. Table D2.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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However, with the exception of the United States and the partner country Brazil, the private sector is relatively small in all these countries (at most 5% of students at the primary level). In contrast, class sizes in private institutions exceed those in public institutions to at least a similar degree in Greece, Japan and Spain.

The comparison of class sizes between public and private institutions shows a mixed picture at the lower secondary level, where private education is more prevalent. Lower secondary average class sizes are larger in private institutions than in public institutions in 11 OECD and 2 partner countries, although differences tend to be smaller than in primary education.

Countries encourage and provide resources for public and private schools for various reasons. In many countries, one reason is to broaden the choices of schooling available to students and their families. Considering the importance of class size in discussions of schooling in many countries, differences in class sizes between public and private schools and institutions may be a driver of differences in enrolment. It is interesting that in countries with a substantial private sector in primary and lower secondary education such as Australia, Belgium (French Community), France, Korea (lower secondary level only), and Luxembourg and the partner country Chile (Table C1.5), there are, on average, only marginal differences in class size between public and private institutions. Where large differences do exist, they tend to show that private institutions have more students per class than public ones. This indicates that in countries where a substantial proportion of students and families have decided to choose private education institutions, class size is not a major determinant of their decisions.

Teaching staff and non-teaching staff employed in education

The size of teaching staff has an impact on the training of children and students, and also on expenditure on educational institutions (expenditure on compensation of teachers). However expenditure is also dependent on the size of non-teaching staff in the educational sector. There are significant differences in the distribution of educational staff between teaching and other categories, reflecting differences among countries in the organisation and management of schooling. These differences reflect the numbers of staff that countries employ in non-teaching capacities, *e.g.* principals without teaching responsibilities, guidance counsellors, school nurses, librarians, researchers without teaching responsibilities, bus drivers, janitors and maintenance workers, and also administrative and management personnel both inside and outside the school.

At primary, secondary and post-secondary non-tertiary levels of education, among the 11 OECD countries and 2 partner countries reporting data for the different categories, the teaching and non-teaching staff employed in primary and secondary schools ranges from about 90 persons or less per 1 000 students enrolled in France, Japan, Mexico and the partner country Chile to 120 persons or more per 1 000 students in the Czech Republic, Greece, Hungary, Norway and the United States and exceeds 150 persons per 1 000 persons in Iceland and Italy.

Among the 13 OECD and partner countries for which data are available for each category of personnel employed in education, the staff not classified as instructional personnel (staff other than teaching staff, teachers' aides and research assistants) represent on average slightly more than one-quarter of the total teaching and non-teaching staff in primary and secondary schools. The share of non-instructional staff is lowest in Greece at less than 10%. In five of these countries

(the Czech Republic, Iceland, Italy, the United States and the partner country Chile), these staff represent between 30% and 40% of total teaching and non-teaching staff and in Mexico, this proportion exceeds 40% (Table D2.4a). However, in some countries (*e.g.* the Czech Republic and Mexico) these large shares of non-teaching staff are not necessarily associated with higher than average expenditure per student; expenditure per student in these countries is below the OECD average (Table B1.2). This implies that the levels of salaries for the different categories are low enough to counterbalance the larger size of non-teaching categories within the educational personnel.

In Hungary, Iceland, Italy and the United States, maintenance and operations personnel working in primary, secondary and post-secondary non-tertiary schools represent more than 20 persons per 1 000 students enrolled in these schools. Administrative personnel represent between 4 and 10 persons per 1 000 students enrolled in primary and secondary schools in France, Hungary, Iceland, Japan and the United States and 18 persons or more per 1 000 students in Australia, the Czech Republic and Mexico, whereas the staff employed in school and higher level management exceed 6 persons per 1 000 students in Mexico, Norway and the Slovak Republic, and 10 persons in Greece and Iceland (Table D2.4a). Finally, the staff employed to provide professional support for students are relatively numerous in Italy and the United States (about 10 persons per 1 000 students enrolled in both primary and secondary schools).

At tertiary level of education, there are also significant differences in the distribution of educational staff between instructional and other categories in the 10 OECD countries and one partner country for which data are available: educational staff varies from less than 50 persons per 1 000 students in Greece to 150 or more in Austria, Iceland, Japan and the United States. Compared to the primary and secondary levels of education, there are more than 10 more teaching and non-teaching staff per 1 000 students in tertiary education, on average among countries with available data in the different levels of education. However, among the nine countries with available data for both tertiary education and primary, secondary and post-secondary non-tertiary education, the difference surpasses 20 persons in six of them.

In tertiary education, staff not classified as instructional personnel represents on average nearly 40% of the total teaching and non-teaching staff (among countries with available data for the different categories). In most of these countries, non-instructional staff represents between 30% and 40% of the total teaching and non-teaching staff, but it exceeds 50% in the Czech Republic, Hungary and the United States (Table D2.4b). In the Czech Republic, this is attributed to a larger proportion of administrative personnel, and in the United States, this is attributed to the larger proportions of both management personnel and professional support for students, in comparison to other countries. It is interesting to note that two (the Czech Republic and Hungary) out of these three countries have lower than average expenditure per student at the tertiary level (Table B1.2), thus showing that the size of non-instructional staff does not necessarily result in higher than average expenditure per student (as shown above for primary, secondary and post-secondary non-tertiary education).

Definitions and methodologies

Data refer to the academic year 2006/07 and are based on the UOE data collection on education statistics administered by the OECD in 2008 (for details see Annex 3 at *www.oecd.org/edu/eag2009*).

Class sizes have been calculated by dividing the number of students enrolled by the number of classes. In order to ensure comparability among countries, special needs programmes have been excluded. Data include only regular programmes at primary and lower secondary levels of education and exclude teaching in sub-groups outside the regular classroom setting.

The ratio of students to teaching staff has been calculated by dividing the number of full-time equivalent students at a given level of education by the number of full-time equivalent teachers at that level and in the specified type of institution.

The breakdown of the ratio of students to teaching staff by type of institution distinguishes between students and teachers in public institutions and in private institutions (government-dependent private institutions and independent private institutions). In some countries the proportion of students in private institutions is small (Table C1.5).

Instructional personnel comprises:

- Teaching staff refers to professional personnel directly involved in teaching students. The classification includes classroom teachers, special education teachers and other teachers who work with a whole class of students in a classroom, in small groups in a resource room, or in one-to-one teaching situations inside or outside a regular class. Teaching staff also includes department chairpersons whose duties include some teaching, but excludes non-professional personnel who support teachers in providing instruction to students, such as teachers' aides and other paraprofessional personnel.
- Teachers' aides and teaching/research assistants include non-professional personnel or students who support teachers in providing instruction to students.

Non-instructional personnel comprises four categories:

- Professional support for students includes professional staff who provide services to students that support their learning. In many cases, these staff originally qualified as teachers but then moved into other professional positions within the education system. This category also includes all personnel employed in education systems who provide health and social support services to students, such as guidance counsellors, librarians, doctors, dentists, nurses, psychiatrists and psychologists, and other staff with similar responsibilities.
- School and higher level management includes professional personnel who are responsible for school management and administration and personnel whose primary responsibility is the quality control and management of higher levels of the education system. This category covers principals, assistant principals, headmasters, assistant headmasters, superintendents of schools, associate and assistant superintendents, commissioners of education and other management staff with similar responsibilities.
- School and higher-level administrative personnel includes all personnel who support the administration and management of schools and of higher levels of the education system. The category includes: receptionists, secretaries, typists and word processing staff, book-keepers and clerks, analysts, computer programmers, network administrators, and others with similar functions and responsibilities.
- Maintenance and operations personnel include personnel who support the maintenance and operation of schools, the transportation of students to and from school, school security

and catering. This category includes the following types of personnel: masons, carpenters, electricians, maintenance staff, repairers, painters and paperhangers, plasterers, plumbers and vehicle mechanics. It also includes bus drivers and other vehicle operators, construction workers, gardeners and grounds staff, bus monitors and crossing guards, cooks, custodians, food servers and others with similar functions.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/664810147180

- ***Table D2.5. Average class size, by type of institution and level of education (2000)***

Specific notes on definitions and methodologies regarding this indicator for each country are given in Annex 3 at *www.oecd.org/edu/eag2009*.

Table D2.1.

Average class size, by type of institution and level of education (2007)

Calculations based on number of students and number of classes

	Primary education					Lower secondary education (general programmes)				
		Private institutions					Private institutions			
	Public institutions	Total private institutions	Government-dependent private institutions	Independent private institutions	Total: Public and private institutions	Public institutions	Total private institutions	Government-dependent private institutions	Independent private institutions	Total: Public and private institutions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD countries										
Australia	23.3	25.1	25.1	a	**23.8**	23.1	25.1	25.1	a	**23.8**
Austria	19.9	21.3	x(2)	x(2)	**19.9**	24.0	24.6	x(7)	x(7)	**24.1**
Belgium	m	m	m	a	**m**	m	m	m	a	**m**
Belgium (Fr.)	19.9	20.8	20.8	a	**20.2**	19.8	m	m	a	**m**
Canada	m	m	m	m	**m**	m	m	m	m	**m**
Czech Republic	20.0	16.0	16.0	a	**20.0**	22.9	20.8	20.8	a	**22.9**
Denmark	20.0	16.5	16.5	a	**19.5**	20.2	18.5	18.5	a	**19.9**
Finland	19.8	18.4	18.4	a	**19.8**	20.0	21.7	21.7	a	**20.1**
France	22.6	22.9	x(2)	x(2)	**22.6**	24.1	24.9	25.1	13.7	**24.3**
Germany	22.1	22.7	22.7	x(3)	**22.1**	24.6	25.5	25.5	x(8)	**24.7**
Greece	16.8	20.9	a	20.9	**17.0**	21.5	23.6	a	23.6	**21.6**
Hungary	19.9	21.0	21.0	a	**20.0**	21.2	19.4	19.4	a	**21.0**
Iceland	18.2	15.5	15.5	n	**18.2**	19.9	11.8	11.8	n	**19.8**
Ireland	24.5	m	a	m	**m**	20.3	m	a	m	**m**
Italy	18.4	20.1	a	20.1	**18.6**	20.8	21.8	a	21.8	**20.9**
Japan	28.1	33.0	a	33.0	**28.2**	33.0	35.6	a	35.6	**33.2**
Korea	31.0	30.8	a	30.8	**31.0**	35.8	34.7	34.7	a	**35.6**
Luxembourg	15.6	18.5	18.2	18.5	**15.8**	19.8	20.8	20.8	21.0	**20.0**
Mexico	19.7	20.9	a	20.9	**19.8**	29.6	25.3	a	25.3	**29.2**
Netherlands	x(5)	x(5)	x(5)	a	**m**	m	m	m	m	**m**
New Zealand	m	m	m	m	**m**	m	m	m	m	**m**
Norway	a	a	a	a	**a**	a	a	a	a	**a**
Poland	19.9	11.9	11.8	12.0	**19.6**	24.6	17.9	25.5	16.0	**24.3**
Portugal	19.5	21.4	24.0	20.7	**19.7**	22.2	23.5	23.8	23.1	**22.3**
Slovak Republic	19.7	18.8	18.8	n	**19.6**	22.6	21.8	21.8	n	**22.5**
Spain	19.5	24.2	24.3	23.5	**20.8**	23.7	26.5	26.7	24.7	**24.5**
Sweden	m	m	m	m	**m**	m	m	m	m	**m**
Switzerland	19.5	m	m	m	**m**	19.0	m	m	m	**m**
Turkey	27.5	17.8	a	17.8	**27.2**	a	a	a	a	**a**
United Kingdom	25.8	13.1	a	13.1	**24.6**	23.7	12.5	17.8	11.7	**22.6**
United States	23.6	19.4	a	19.4	**23.1**	24.9	19.3	a	19.3	**24.3**
OECD average	*21.4*	*20.5*	*19.5*	*20.9*	*21.4*	*23.4*	*22.7*	*22.6*	*21.4*	*23.9*
EU19 average	*20.2*	*19.3*	*19.3*	*18.4*	*20.0*	*22.1*	*21.6*	*22.3*	*19.5*	*22.4*
Partner countries										
Brazil	25.9	18.0	a	18.0	**24.9**	30.0	24.4	a	24.4	**29.4**
Chile	30.7	32.2	34.0	23.9	**31.5**	30.3	31.7	33.2	24.5	**30.9**
Estonia	19.1	14.3	a	14.3	**18.9**	23.0	15.3	a	15.3	**22.8**
Israel	27.6	a	a	a	**27.6**	32.7	a	a	a	**32.7**
Russian Federation	15.5	10.2	a	10.2	**15.5**	18.1	9.6	a	9.6	**18.0**
Slovenia	17.5	17.0	17.0	n	**17.5**	19.2	23.5	23.5	n	**19.2**

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/664810147180

Table D2.2.

Ratio of students to teaching staff in educational institutions (2007)

By level of education, calculations based on full-time equivalents

	Pre-primary education			Secondary education				Tertiary education		
	Students to contact staff (teachers and teacher aides)	Students to teaching staff	Primary education	Lower secondary education	Upper secondary education	All secondary education	Post-secondary non-tertiary education	Tertiary-type B	Tertiary-type A and advanced research programmes	All tertiary education
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD countries										
Australia[1, 2]	m	m	15.9	x(6)	x(6)	12.1	m	m	15.0	m
Austria	14.1	16.4	13.6	10.3	11.0	10.6	9.6	7.0	14.6	13.7
Belgium[3]	16.0	16.0	12.6	9.2	10.2	9.8	x(5)	x(10)	x(10)	18.1
Canada[2]	m	x(6)	x(6)	x(6)	x(6)	16.4	m	m	m	m
Czech Republic	13.4	13.6	18.7	12.3	12.3	12.3	16.9	15.2	19.0	18.6
Denmark	m	6.0	x(4)	11.2	m	m	m	m	m	m
Finland	m	11.4	15.0	9.9	15.9	13.1	x(5)	n	16.6	16.6
France[3]	19.2	19.2	19.7	14.3	9.6	11.9	x(8)	16.8	16.6	16.6
Germany	11.1	14.4	18.3	15.2	14.3	14.9	14.9	11.8	12.2	12.1
Greece	11.9	11.9	10.1	7.7	7.3	7.5	7.0	23.0	28.6	26.3
Hungary	m	10.8	10.2	10.2	12.1	11.1	11.4	18.5	17.0	17.1
Iceland	7.3	7.3	x(4)	10.4	10.2	10.3	x(5, 10)	x(10)	x(10)	10.2
Ireland[2]	7.0	13.8	17.9	x(6)	x(6)	13.2	x(6)	x(10)	x(10)	16.5
Italy	11.8	11.8	10.5	9.4	10.8	10.2	m	9.3	19.6	19.5
Japan	16.1	16.8	19.0	14.8	12.5	13.5	x(5, 10)	7.9	11.8	10.6
Korea	18.7	18.7	25.6	20.5	16.2	18.2	a	m	m	m
Luxembourg[2]	m	12.6	11.2	x(6)	x(6)	9.0	m	m	m	m
Mexico	28.4	28.4	28.0	33.3	25.7	30.3	a	12.3	14.5	14.4
Netherlands	m	x(3)	15.6	x(6)	x(6)	15.7	x(6)	m	15.1	m
New Zealand	10.5	10.5	17.5	16.2	13.3	14.7	16.6	15.5	17.5	17.0
Norway[2]	m	m	11.0	10.2	9.8	10.0	x(5)	x(10)	x(10)	10.0
Poland	m	18.6	11.0	12.4	12.2	12.3	13.2	12.8	17.2	17.2
Portugal	m	15.9	11.8	7.9	8.4	8.1	x(5)	x(10)	x(10)	13.2
Slovak Republic	13.3	13.4	17.9	13.9	14.1	14.0	9.8	10.5	13.2	13.2
Spain	m	13.7	13.6	11.7	7.7	10.0	a	8.0	11.1	10.4
Sweden	m	12.5	12.3	11.5	13.6	12.5	12.2	x(10)	x(10)	8.8
Switzerland[1, 2]	m	16.9	14.8	12.3	10.6	11.9	m	m	m	m
Turkey	m	25.9	26.2	a	16.2	16.2	a	58.1	13.8	18.1
United Kingdom[1]	18.0	18.4	19.4	16.7	11.3	13.6	x(5)	x(10)	x(10)	17.6
United States	11.3	13.8	14.6	14.7	15.6	15.1	21.7	x(10)	x(10)	15.1
OECD average	***14.3***	***14.9***	***16.0***	***13.2***	***12.5***	***13.0***	***13.3***	***15.1***	***16.1***	***15.3***
EU19 average	***13.6***	***13.9***	***14.4***	***11.5***	***11.4***	***11.7***	***11.9***	***13.3***	***16.7***	***16.0***
Partner countries										
Brazil	14.7	19.9	25.8	22.3	20.2	21.4	a	x(10)	x(10)	14.3
Chile	17.7	19.1	24.7	24.7	25.7	25.3	a	m	m	m
Estonia	m	m	14.4	11.4	12.2	11.8	x(5)	m	m	m
Israel	m	m	16.4	12.4	11.8	12.0	m	m	m	m
Russian Federation[2, 4]	m	m	17.0	x(6)	x(6)	8.8	x(6)	10.7	13.7	12.9
Slovenia	9.4	9.4	15.2	9.5	13.9	11.7	x(5)	x(10)	x(10)	21.2

1. Includes only general programmes in upper secondary education.
2. Public institutions only (for Australia, for tertiary-type A and advanced research programmes only; for Ireland, at secondary level only; for the Russian Federation, at primary level only).
3. Excludes independent private institutions.
4. Excludes part-time personal in public institutions at lower secondary and general upper secondary levels.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664810147180

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Table D2.3.

Ratio of students to teaching staff, by type of institution (2007)

By level of education, calculations based on full-time equivalents

	Lower secondary education				Upper secondary education				All secondary education			
		Private				Private				Private		
	Public	Total private institutions	Government-dependent private institutions	Independent private institutions	Public	Total private institutions	Government-dependent private institutions	Independent private institutions	Public	Total private institutions	Government-dependent private institutions	Independent private institutions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries												
Australia[1]	x(9)	x(10)	x(11)	a	x(9)	x(10)	x(11)	a	12.3	11.7	11.7	a
Austria	10.2	11.5	x(2)	x(2)	11.0	11.0	x(6)	x(6)	10.5	11.3	x(10)	x(10)
Belgium[2]	8.9	m	9.4	m	10.5	m	10.0	m	9.9	m	9.8	m
Canada	m	m	m	m	m	m	m	m	m	m	m	m
Czech Republic	12.3	10.7	10.7	a	12.0	14.3	14.3	a	12.2	13.7	13.7	a
Denmark[3]	11.2	11.1	11.1	a	m	m	m	a	m	m	m	a
Finland[4]	9.9	9.8	9.8	a	15.2	20.8	20.8	a	12.6	18.1	18.1	a
France	14.2	m	15.0	m	9.4	m	10.3	m	11.7	m	12.7	m
Germany	15.3	14.6	14.6	x(3)	14.3	13.7	13.7	x(7)	15.0	14.3	14.3	x(11)
Greece	7.6	6.9	a	6.9	7.4	6.3	a	6.3	7.5	6.6	a	6.6
Hungary	10.3	10.1	10.1	a	12.2	11.3	11.3	a	11.2	10.9	10.9	a
Iceland[3, 4]	10.4	9.5	9.5	n	10.1	11.6	11.6	n	10.3	11.0	11.0	n
Ireland[2]	x(9)	x(10)	a	x(12)	x(9)	x(10)	a	x(12)	13.2	m	a	m
Italy	9.5	6.9	a	6.9	11.7	4.3	a	4.3	10.7	5.0	a	5.0
Japan[4]	14.9	13.1	a	13.1	11.8	14.2	a	14.2	13.4	14.0	a	14.0
Korea	20.5	20.7	20.7	a	15.7	16.8	16.8	a	18.4	17.8	17.8	a
Luxembourg	x(9)	m	m	m	x(9)	m	m	m	9.0	m	m	m
Mexico	35.8	22.6	a	22.6	30.8	15.5	a	15.5	34.1	18.8	a	18.8
Netherlands	m	m	m	a	m	m	m	a	m	m	m	a
New Zealand	16.3	15.3	16.2	13.5	13.2	13.5	15.6	9.5	14.8	14.2	15.8	11.1
Norway	10.2	m	m	m	9.8	m	m	m	10.0	m	m	m
Poland	12.5	10.2	12.3	9.6	12.4	9.7	14.3	9.1	12.4	9.8	13.4	9.2
Portugal	7.7	9.5	9.6	9.3	9.0	6.6	11.2	5.7	8.2	7.6	10.2	6.5
Slovak Republic	13.9	13.2	13.2	n	14.4	19.6	19.6	n	14.1	16.6	16.6	n
Spain	10.3	16.2	16.2	15.9	7.1	10.0	9.9	10.3	8.9	13.9	14.5	11.8
Sweden	11.4	12.3	12.3	n	13.4	15.4	15.4	n	12.4	14.0	14.0	n
Switzerland[5]	12.3	m	m	m	10.6	m	m	m	11.9	m	m	m
Turkey	a	a	a	a	16.9	6.7	a	6.7	16.9	6.7	a	6.7
United Kingdom[1]	18.1	7.3	25.0	6.3	12.2	6.6	5.1	6.7	14.7	6.9	13.9	6.5
United States	15.6	9.3	a	9.3	16.4	10.6	a	10.6	15.9	9.9	a	9.9
OECD average	***13.3***	***12.0***	***13.5***	***8.7***	***12.8***	***11.9***	***13.3***	***7.1***	***13.0***	***12.0***	***13.7***	***7.6***
EU19 average	***11.4***	***10.7***	***13.0***	***9.1***	***11.5***	***11.5***	***13.0***	***7.1***	***11.4***	***11.4***	***13.5***	***7.6***
Partner countries												
Brazil	24.0	12.8	a	12.8	22.6	11.8	a	11.8	23.4	12.2	a	12.2
Chile	25.3	24.1	25.6	17.3	26.0	25.5	28.8	14.3	25.7	25.0	27.7	15.1
Estonia	11.5	8.5	a	8.5	12.3	9.5	a	9.5	11.9	9.2	a	9.2
Israel	12.4	a	a	a	11.8	a	a	a	12.0	a	a	a
Russian Federation	m	m	a	m	m	m	a	m	m	m	a	m
Slovenia[2]	9.5	4.3	4.3	n	14.0	13.4	x(6)	x(6)	11.7	12.6	x(10)	x(10)

1. Includes only general programmes in lower and upper secondary education.
2. Upper secondary includes post-secondary non-tertiary education.
3. Lower secondary includes primary education.
4. Upper secondary education includes programmes from post-secondary education.
5. Includes only general programmes in upper secondary education.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/664810147180

Table D2.4a.

Teaching staff and non-teaching staff employed in primary and secondary educational institutions (2007)

Teaching staff and non-teaching staff in primary and secondary schools per 1000 students, calculation based on full time equivalents

	Instructional personnel			Management/Quality control/Administration			
	Classroom teachers, academic staff & other teachers	Teacher aides and teaching/research assistants	Professional support for students	School- and higher-level management	School- and higher-level administrative personnel	Maintenance and operations personnel	Total teaching and non-teaching staff
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD countries							
Australia	71.3	x(5)	2.3	m	20.5	2.9	**97.0**
Austria	88.2	m	m	m	m	m	**m**
Belgium[1]	92.6	m	m	4.2	m	m	**m**
Canada[2]	61.2	m	m	m	m	m	**m**
Czech Republic	71.8	1.1	7.6	4.3	19.5	16.8	**121.2**
Denmark	89.4	m	m	m	m	m	**m**
Finland[1]	72.6	9.6	m	3.0	m	m	**m**
France[2]	69.8	2.4	m	4.7	5.3	8.3	**90.5**
Germany	63.3	m	m	m	m	m	**m**
Greece	117.4	0.4	a	10.7	1.4	0.3	**130.3**
Hungary[3]	92.0	m	2.5	x(1, 5)	9.5	22.8	**126.8**
Iceland[1, 3]	96.9	7.7	5.7	11.7	4.8	24.6	**151.4**
Ireland	64.3	m	m	m	m	m	**m**
Italy[1, 3]	97.1	3.2	10.8	2.7	14.0	28.6	**156.4**
Japan[1, 3]	63.5	m	5.5	5.6	4.9	5.8	**85.3**
Korea[1]	47.0	a	m	2.8	m	m	**m**
Luxembourg[2]	100.0	m	m	m	m	m	**m**
Mexico[1, 3]	34.5	0.2	1.1	6.3	18.0	5.9	**66.1**
Netherlands	63.9	m	m	m	m	m	**m**
New Zealand	63.3	m	m	m	m	m	**m**
Norway[1, 2]	95.6	8.1	4.4	8.3	m	5.7	**122.2**
Poland[1, 2]	84.5	m	4.9	5.5	m	m	**m**
Portugal	104.0	m	m	m	m	m	**m**
Slovak Republic[1]	67.4	1.2	0.2	6.8	m	m	**m**
Spain	86.9	m	m	m	m	m	**m**
Sweden	80.5	m	m	m	m	m	**m**
Switzerland[2]	75.1	m	m	m	m	m	**m**
Turkey	43.4	a	m	m	m	m	**m**
United Kingdom	65.8	m	m	m	m	m	**m**
United States	67.2	13.3	9.7	5.2	10.0	27.1	**132.5**
OECD average	***76.4***	***4.7***	***5.0***	***5.8***	***10.8***	***13.5***	***116.3***
EU19 average	***82.7***	***3.0***	***5.2***	***5.3***	***10.0***	***15.4***	***125.0***
Partner countries							
Brazil	43.4	m	m	m	m	m	**m**
Chile	40.0	a	0.5	4.3	1.2	16.3	**62.4**
Estonia	78.8	m	m	m	m	m	**m**
Israel	70.7	m	m	m	m	m	**m**
Russian Federation	95.3	m	m	m	m	m	**m**
Slovenia[1, 3]	78.4	7.9	9.4	4.5	m	m	**100.2**

1. School- and higher-level management excludes higher-level management.
2. Public institutions only.
3. School- and higher-level administrative personnel excludes higher-level administrative personnel.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table D2.4b.

Teaching staff and non-teaching staff employed in tertiary educational institutions (2007)

Teaching staff and non-teaching staff in tertiary educational institutions per 1000 students, calculation based on full time equivalents

	Instructional personnel			Management/Quality control/Administration			
	Classroom teachers, academic staff & other teachers	Teacher aides and teaching/ research assistants	Professional support for students	School- and higher-level management	School- and higher-level administrative personnel	Maintenance and operations personnel	Total teaching and non-teaching staff
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD countries							
Australia[1, 2]	66.8	5.0	m	m	m	m	**m**
Austria[2, 3, 4]	73.2	34.3	2.1	1.2	44.9	4.8	**160.6**
Belgium	55.1	m	m	m	m	m	**m**
Canada	m	m	m	m	m	m	**m**
Czech Republic	53.7	1.8	8.6	1.5	33.4	13.3	**112.3**
Denmark	m	m	m	m	m	m	**m**
Finland	60.1	m	m	m	m	m	**m**
France[1, 5]	61.7	a	1.0	6.5	7.7	14.0	**90.9**
Germany	82.6	m	m	m	m	m	**m**
Greece	38.0	a	a	1.1	7.8	1.0	**47.9**
Hungary[3, 4, 6]	58.6	m	x(5)	x(5)	87.0	x(5)	**145.5**
Iceland[3, 4]	97.6	3.2	3.2	10.5	24.8	12.2	**151.6**
Ireland	60.5	m	m	m	m	m	**m**
Italy[3, 4]	51.3	8.6	3.6	0.4	28.8	3.3	**95.8**
Japan[3, 4]	94.8	m	24.8	0.5	26.0	4.3	**150.4**
Korea	m	m	m	m	m	m	**m**
Luxembourg	m	m	m	m	m	m	**m**
Mexico[3, 4]	69.4	m	m	6.2	n	n	**m**
Netherlands	66.2	m	m	m	m	m	**m**
New Zealand[1, 4]	58.8	15.9	5.9	4.1	35.1	5.4	**125.1**
Norway	m	m	m	m	m	m	**m**
Poland	58.3	m	12.5	30.1	m	m	**m**
Portugal	75.8	m	m	m	m	m	**m**
Slovak Republic[3]	75.9	m	m	0.9	m	m	**m**
Spain	95.8	m	m	m	m	m	**m**
Sweden	114.2	m	m	m	m	m	**m**
Switzerland	m	m	m	m	m	m	**m**
Turkey	55.3	a	m	m	m	m	**m**
United Kingdom	56.9	m	m	m	m	m	**m**
United States	66.1	7.9	44.8	14.4	40.9	19.5	**193.7**
OECD average	***68.6***	***11.0***	***11.8***	***6.5***	***33.6***	***8.6***	***127.4***
EU19 average	***66.9***	***14.9***	***5.5***	***6.0***	***34.9***	***7.3***	***108.8***
Partner countries							
Brazil	69.7	m	m	m	m	m	**m**
Chile	m	m	m	m	m	m	**m**
Estonia	m	m	m	m	m	m	**m**
Israel[1]	81.4	m	m	m	m	m	**m**
Russian Federation	77.7	m	m	m	m	m	**m**
Slovenia[3, 4]	47.1	33.4	21.0	3.5	13.6	4.7	**123.4**

1. Public institutions only.
2. Excludes tertiary-type B education.
3. School- and higher-level management excludes higher-level management.
4. School- and higher-level administrative personnel excludes higher-level administrative personnel.
5. School- and higher-level management excludes school-level management.
6. Tertiary-type B is partially included with upper secondary education.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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INDICATOR D3

HOW MUCH ARE TEACHERS PAID?

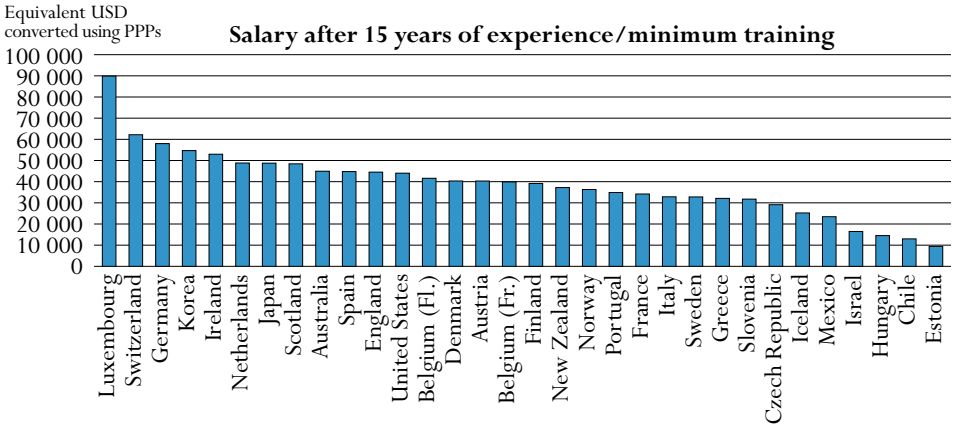
This indicator shows the starting, mid-career and maximum statutory salaries of teachers in public primary and secondary education, and various additional payments and incentive schemes used to reward teachers. Together with teachers' working and teaching time (see Indicator D4), this indicator presents some key measures of teachers' working lives. Differences in teachers' salaries, along with other factors such as student-to-staff ratios (see Indicator D2), provide some explanation of the differences in expenditure per student (see Indicators B1 and B7).

Key results

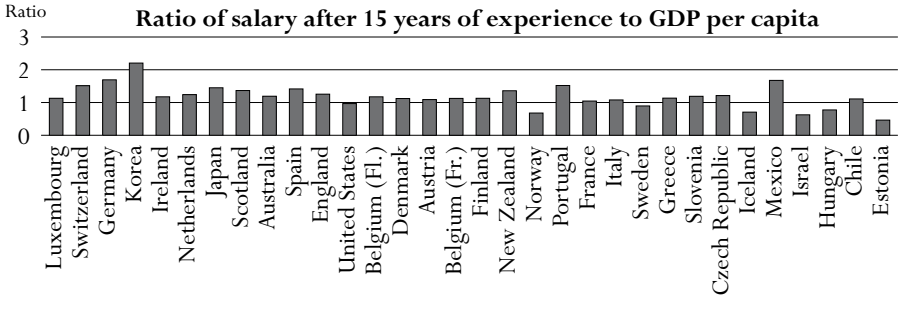
Chart D3.1. Teachers' salaries in lower secondary education (2007)

Annual statutory teachers' salaries in public institutions in lower secondary education, in equivalent USD converted using PPPs, and the ratio of salary after 15 years of experience to GDP per capita

Salaries of teachers with at least 15 years of experience at the lower secondary level range from less than USD 15 000 in Hungary and in the partner countries Chile and Estonia to USD 52 000 or more in Germany, Ireland, Korea and Switzerland, and exceed USD 89 000 in Luxembourg.



Salaries for teachers with at least 15 years of experience in lower secondary education are over twice the GDP per capita in Korea, whereas in Iceland, Norway, and in the partner countries Estonia and Israel, salaries are 75% or less than the GDP per capita.



Countries are ranked in descending order of teachers' salaries in lower secondary education after 15 years of experience and minimum training.

Source: OECD. Table D3.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/665004614152

Other highlights of this indicator

- Teachers' salaries increased in real terms between 1996 and 2007 in virtually all countries, with the largest increases in Finland, Hungary and Mexico (and in starting salaries in Australia) and in partner country Estonia. Salaries at the primary and upper secondary levels in Spain fell in real terms over this period, although they remained above the OECD average.

- On average in OECD countries, upper secondary teachers' salaries per teaching hour exceed those of primary teachers by 42%; the difference is 5% or less in New Zealand, Scotland and the partner country Chile, and is greater than 75% only in Denmark.

- Salaries at the top of the scale are on average around 70% higher than starting salaries for both primary and secondary education, although this differential largely varies among countries in line with the number of years it takes to progress through the scale. Top-of-the-scale salaries in Korea are almost three times the starting salaries, but it takes 37 years to reach the top of the scale. In Portugal, while the ratio is similar to Korea's, teachers reach the top of the salary scale after 26 years of service. However, not all teachers in every country reach the top of the salary scale. For example, in the Netherlands there are three different salary levels for teachers in secondary education. In 2006 only 14.8% of the teachers in secondary education were at the maximum salary level.

Policy context

Teachers' salaries are the largest single cost in school education. Compensation is therefore a critical consideration for policy makers seeking to maintain both the quality of teaching and a balanced education budget (see Indicator B6). The size of education budgets naturally reflects trade-offs among many related factors: teachers' salaries, ratio of students to teaching staff, instruction time planned for students and designated number of teaching hours.

Ensuring a sufficient number of skilled teachers is a key issue in all OECD countries. In a competitive labour market, the equilibrium rate of salaries paid to different types of teachers would reflect the supply of and demand for those teachers. This is often not the case in OECD countries, as salaries and other working conditions are often set centrally for all teachers. Teachers' salaries and conditions are therefore policy malleable factors that can affect both the demand for and supply of teachers. In addition, salaries and working conditions can be important in attracting, developing and retaining skilled and effective teachers.

Comparing salary levels at different career points allows for some analysis of the structure of careers and the salary associated with advancement in the teaching profession. Theoretically, the salary structure can provide salary incentives and rewards so as to attract high-quality teachers and increase their job satisfaction and performance. Other important aspects of the career structure are probationary periods at the beginning of teachers' careers and the issue of tenure (see Indicator D3 in *Education at a Glance 2007*). Salary increases can be concentrated at different points in the salary structure, for example, early in the career or for more experienced employees, or can have a more linear structure with gradual salary increases throughout a career.

Evidence and explanations

Comparing teachers' salaries

This indicator compares the starting, mid-career and maximum statutory salaries of teachers with the minimum level of qualifications required for certification in public primary and secondary education. First, teachers' salaries are examined in absolute terms at three career points: starting, mid-career and top-of-the-scale. Next, levels of salaries are compared in relative terms. Finally, changes in these salaries between 1996 and 2007 are presented.

International comparisons of salaries provide simplified illustrations of the compensation received by teachers for their work. They provide a snapshot of the systems of compensation and the welfare inferences that can be made. Large differences in taxation and social benefit systems in OECD countries as well as the use of financial incentives (including regional allowances for teaching in remote regions, family allowances, reduced rates on public transport, tax allowances on purchases of cultural goods, and other quasi-pecuniary entitlements that contribute to a teacher's basic income) make it important to exercise caution in interpreting comparisons of teachers' salaries.

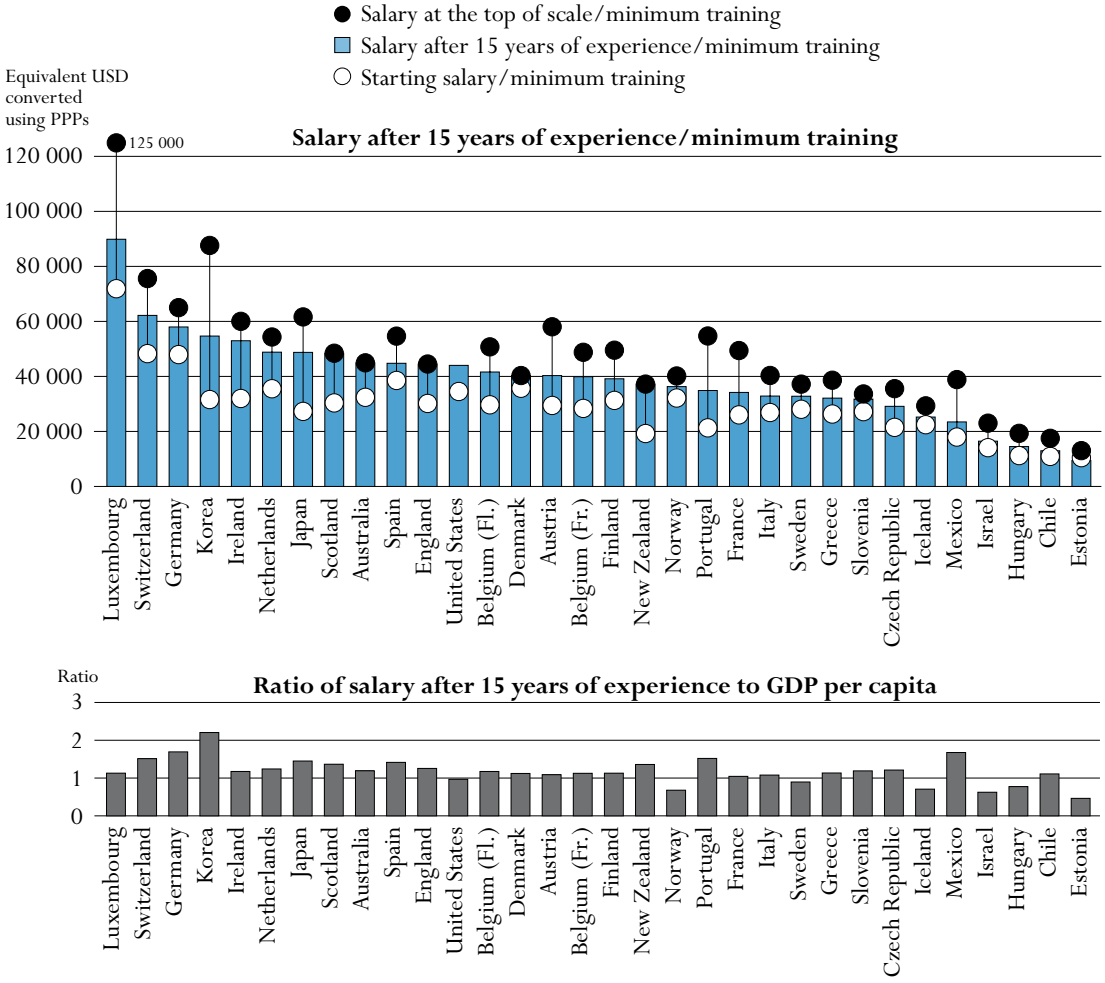
Statutory salaries as reported here must be distinguished from actual expenditures on wages by governments and from teachers' average salaries, which are also influenced by factors such as the age structure of the teaching force and the prevalence of part-time work. Indicator B6 shows the total amounts paid in compensation to teachers. Furthermore, since teaching time, teachers' workloads and the proportion of teachers in part-time employment vary considerably among countries, these factors should be taken into account when using comparisons of statutory salaries

to judge teachers' overall benefits in different countries (see Indicator D4). When considering the salary structure of teachers it is also important to recall that not all teachers reach the top of the salary scale. For example, in the Netherlands there are three different salary levels for teachers in secondary education. In 2006 only 14.8% of the teachers in secondary education were at the maximum salary level.

The annual statutory salaries of lower secondary teachers with 15 years of experience range from less than USD 15 000 in Hungary and in the partner countries Chile and Estonia to over USD 52 000 in Germany, Ireland, Korea and Switzerland and more than USD 89 000 in Luxembourg (Table D3.1).

Chart D3.2. Teachers' salaries (minimum, after 15 years of experience, and maximum) in lower secondary education (2007)

Annual statutory teachers' salaries in public institutions in lower secondary education, in equivalent USD converted using PPPs, and the ratio of salary after 15 years of experience to GDP per capita



Countries are ranked in descending order of teachers' salaries in lower secondary education after 15 years of experience and minimum training.

Source: OECD. Table D3.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/665004614152

In most OECD countries, teachers' salaries increase with the level of education at which they teach. For example, in Belgium (Flemish Community), Belgium (French Community), Iceland, Luxembourg, the Netherlands and Switzerland, the salary of an upper secondary teacher with at least 15 years experience is at least 25% higher than that of a primary school teacher with the same experience. In contrast, in Australia, England, Greece, Ireland, Japan, Korea, New Zealand, Portugal, Scotland, Turkey and the United States, and in the partner countries Chile, Estonia, Israel and Slovenia, upper secondary and primary teachers' salaries are more comparable (a difference of less than 5%, Table D3.1). The extent of the variation is influenced by the structure of teachers' salaries up to the mid-career point. In countries such as the United States, teachers' salaries are also influenced by the teachers' educational attainment. As this is not constant at all levels of teachers' careers, care should be taken in interpreting the differences in teachers' salaries at different levels of school education.

Comparatively large differences in teachers' salaries at different levels may influence how schools and school systems attract and retain teachers of different levels. They may also influence the extent to which teachers move among different educational levels and with that, the degree of segmentation in the labour market for teachers.

Statutory salaries relative to GDP per capita

Countries invest in teaching resources relative to their ability to fund educational expenditure, among other things. Comparing statutory salaries to GDP per capita is thus a way of assessing the relative value of teachers' salaries. Comparative data on salaries for comparable professions would provide a better benchmark, but since such data are not yet available, comparisons with GDP per capita provide some basis for standardised comparisons.

Relative to GDP per capita, salaries for teachers with at least 15 years of experience (in primary and lower secondary education) are relatively low in Hungary (0.77), Iceland (0.71), Luxembourg (0.86 in primary education), Norway (0.68), Sweden (0.87 in primary, 0.90 in lower secondary) and in the partner countries Estonia (0.46) and Israel (0.62). They are highest in Korea (2.21 in primary, 2.20 in lower secondary). In upper secondary general education, the lowest ratios are found in Norway (0.72) and in the partner countries Estonia (0.46) and Israel (0.62). Relative to GDP per capita, mid-career salaries are highest in Korea (2.20) (Table D3.1).

At lower secondary level of education, countries such as the Czech Republic, France, Greece, Hungary, Italy, Mexico, New Zealand and Portugal, as well as the partner countries Chile, Estonia, Israel and Slovenia, have both comparatively low GDP per capita and low teachers' salaries compared to OECD averages. Others, such as Korea and Spain, have GDP per capita lower than the average but teachers' salaries that are comparable to those in countries with much higher GDP per capita. Australia, England, Germany, Ireland, Japan, Luxembourg, the Netherlands, Scotland, Switzerland and the United States have both a higher GDP per capita and higher teachers' salaries than the OECD averages (Chart D3.2 and Table D3.1).

Statutory salaries per hour of net teaching time

An alternative measure of salaries that better illustrates the overall cost of classroom teaching time is the statutory salary for a full-time classroom teacher relative to the number of hours per year that a teacher is required to spend teaching students (see Indicator D4). Although this

measure does not adjust salaries for the amount of time that teachers spend in other various teaching-related activities, it nonetheless provides an approximate estimate of the cost of the actual time teachers spend in the classroom.

The average statutory salary per teaching hour after 15 years of experience is USD 49 in primary, USD 61 in lower secondary, and USD 72 in upper secondary general education. In primary education, Hungary, Mexico and Turkey, and the partner countries Chile, Estonia and Israel, have the lowest salaries per teaching hour (USD 30 or less). By contrast, salaries are relatively high in Denmark, Germany, Japan, Korea and Luxembourg (USD 60 or more). There is even more variation in salaries per teaching hour in general upper secondary education, ranging from about USD 28 or less in Turkey, and in the partner countries Chile, Estonia and Israel, to USD 80 or more in Belgium (Flemish Community), Belgium (French Community), Denmark, Germany, Japan, Korea and Luxembourg (Table D3.1).

As secondary teachers are required to teach fewer hours than primary teachers, their salaries per teaching hour are usually higher than those of teachers at lower levels, even in countries where statutory salaries are similar (see Indicator D4). On average among OECD countries, upper secondary teachers' salaries per teaching hour exceed those of primary teachers by around 42%. In New Zealand and Scotland and in the partner country Chile, this difference is 5% or less, but it is 60% or more in Belgium (Flemish Community), France, and more than 100% in Denmark (Table D3.1). However, the large difference between primary and upper secondary teachers' salaries per teaching hour does not necessarily exist when comparing salaries per hour of working time. In Portugal, for example, where there is a large difference in salaries per teaching hour between primary and upper secondary teachers, teaching time at the primary level is 25% higher than teaching time at upper secondary level, even though statutory salaries and working time at school are the same at these levels (Table D4.1).

Teaching experience and qualifications influence teachers' salary scales

Salary structures illustrate the salary incentives available to teachers at different points in their careers. There is some evidence that a sizeable proportion of teachers and school administrators do not want to move to higher positions in the hierarchy in schools (*e.g.* to school principal) (OECD, 2005c). Presumably, this is because the negative aspects of a promotion outweigh positive aspects such as increased salaries, prestige and other rewards. If this is the case, then changes can make the promotion more attractive either through changing the duties and requirements of the position or by changing the salary amount and other rewards offered.

As Table D3.1 shows, OECD data on teachers' salaries are limited to information on statutory salaries at three points of the salary scale: starting salaries, salaries after 15 years of service and salaries at the top of the scale. These salaries are those of teachers with the minimum required training. They must be interpreted with caution as further qualifications can lead to additional wage increases in some OECD countries. Some inferences can be drawn from the data on the degree that salary structures for teachers provide salary increases with different levels of promotion and tenure.

Deferred compensation is a key incentive for workers in many industries. Organisations can design complex deferred compensation schemes to attract high-quality workers and then provide

them with appropriate incentives throughout their careers. Deferred compensation rewards employees for staying in organisations or professions and for meeting established performance criteria. Pensions are an important form of deferred compensation. In most OECD countries, teachers receive some pension that accrues with their experience in the teaching profession. However, pension schemes are not considered here.

Deferred compensation exists in teachers' salary structure. In OECD countries, statutory salaries for primary, lower and upper secondary general teachers with 15 years of experience are, on average, 36%, 35% and 39% higher, respectively, than starting salaries. The increases from starting salary to the top of the salary scale are, on average, 71%, 71% and 73%. For lower secondary teachers, the average starting salary is USD 31 000. With minimum training, it rises to USD 41 993 after 15 years and to USD 51 470 at the top of the salary scale, which is reached, on average, after 24 years of experience. A similar increase is therefore evident between first, the starting salary and that at 15 years of experience and second, the salary at 15 years of experience and at the top of the salary scale (reached, on average, after 24 years of experience).

Salary structures differ widely. A number of countries have relatively flat structures with small increases. For example, teachers at the top of the salary scale in Denmark (except at the upper secondary level), Norway and Turkey, and in the partner countries Estonia and Slovenia, only earn up to 30% more than teachers at the bottom of the salary scale.

Salary increases between the points on a salary structure should be seen in terms of the number of years it takes for a teacher to advance through the salary scale, a factor which varies substantially across countries. In lower secondary education, teachers in Australia, Denmark, New Zealand and Scotland reach the highest step on the salary scale within five to nine years. Monetary incentives therefore disappear relatively quickly compared to other countries. If job satisfaction and performance are determined, at least in part, by prospects of salary increases, difficulties may arise as teachers approach the peak in their age-earnings profiles.

In Austria, the Czech Republic, France, Greece, Hungary, Italy, Japan, Korea, Luxembourg and Spain, and in the partner country Israel, teachers in lower secondary education reach the top of the salary scale after 30 or more years of service (Table D3.1). It is difficult to categorise countries simply by steep or flat salary structures. A number of countries have both steep and flat portions that vary across teachers' tenure. For example, teachers in Germany and Luxembourg have the opportunity for similar salary increases in the first 15 years, but then face very different growth rates; in Luxembourg salaries rise faster, while in Germany increases are relatively small. Policy makers in these countries face different issues for these more experienced teachers.

While the salary opportunities available to teachers are emphasised here, there may also be benefits to compression in pay scales. It is often argued that organisations in which employees have smaller salary differences have greater levels of trust and information flows and a higher degree of collegiality. These benefits need to be weighed against the benefits of salary incentives.

Teachers' salaries between 1996 and 2007

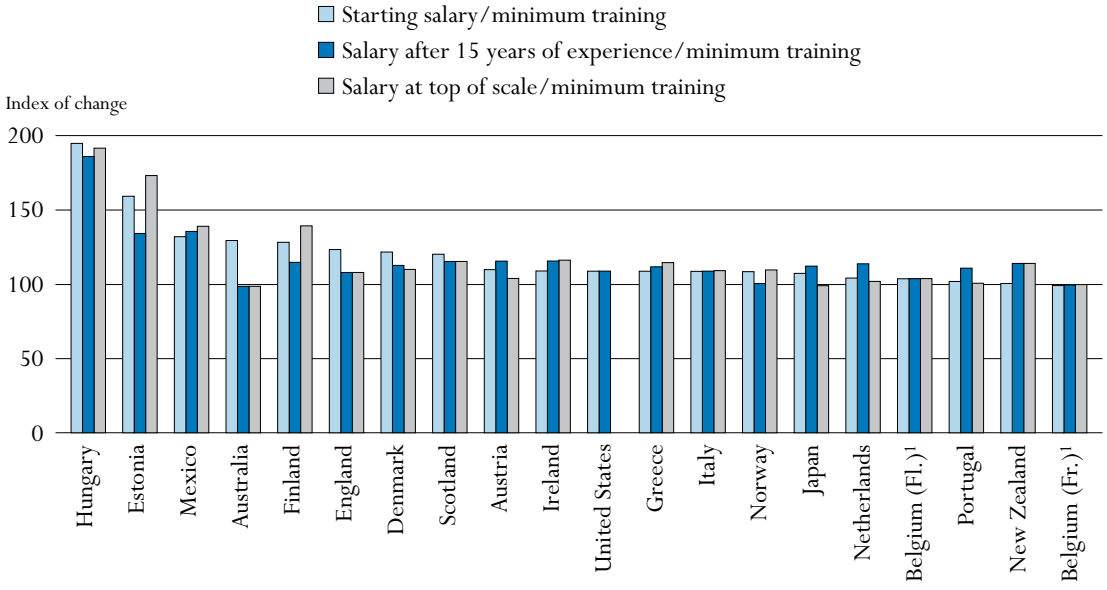
In comparing the index of change between 1996 and 2007 in teachers' salaries, it is evident that salaries have grown in real terms at both primary and secondary levels in virtually all countries. The biggest increases at all levels have taken place in Hungary, although salaries remain below

the OECD average. In some countries, salaries fell in real terms between 1996 and 2007, most notably at the primary and upper secondary levels in Spain (Table D3.2), although they remain above the OECD average.

Salary trends have also varied at different points on the salary scale. For instance, starting salaries have risen faster than mid-career or top-of-the-scale salaries for all education levels in Australia, Denmark, England and Scotland (Table D3.2 and Chart D3.3). By contrast, salaries of teachers with at least 15 years of experience have risen relatively more quickly than both starting and top-of-the-scale salaries in Austria, Japan, the Netherlands and Portugal. In Finland, Greece and Mexico (at primary and lower secondary levels) and in the partner country Estonia, top-of-the-scale salaries have risen faster than starting and mid-career salaries. In New Zealand, salary after 15 years of experience and the top-of-the-scale salary (due to a relatively short salary scale of eight years to reach the top) have risen faster than the starting salary. This shows that the focus is on recruitment in New Zealand. This may be an issue in Australia as well, as starting salaries have risen considerably. A potential problem is the fact that if teachers are attracted by higher salaries in the early stages of their careers, they may expect salary increases to continue throughout their careers. Using resources to attract more early-career teachers to the profession needs to be weighed against potential implications in terms of retention and reduced satisfaction and motivation. Moreover, comparing changes in salaries at three points of the salary structure may not account for changes in other aspects of the structure of teachers' salaries.

Chart D3.3. Changes in teachers' salaries in lower secondary education, by point in the salary scale (1996, 2007)

Index of change between 1996 and 2007 (1996=100, 2007 price levels using GDP deflators)



1. The data for Belgium in 1996 are based on Belgium as a whole.

Countries are ranked in descending order of index of change between 1996 and 2007 in teachers' starting salaries.

Source: OECD. Table D3.2. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Additional payments: incentives and allowances

In addition to basic pay scales, many school systems have schemes that offer additional payments for teachers, which may take the form of financial remuneration and/or reduction in the number of teaching hours. Greece and Iceland, for example, use a reduction in required teaching hours to reward experience or long service, and in Portugal, teachers may receive a reduction in their teaching hours for carrying out special tasks or activities (*e.g.* leading a drama club, acting as a supervisor of student teachers, etc.). Together with the starting salary, such payments may affect a person's decision to enter or stay in the teaching profession. Early career additional payments may include family allowances and bonuses for working in certain locations, and higher initial salaries for higher-than-minimum teaching certification or qualifications, such as qualifications in multiple subjects or certification to teach students with special educational needs.

Adjustments to the base salary may be awarded to teachers yearly or on an incidental basis in public schools either by the head teacher or school principal, or by the local, regional or national government. A distinction is made between an addition to teachers' base salary, a yearly payment and an incidental or "one-off" payment.

Types of additional payments

Data on additional payments fall into three broad areas:

- Those based on responsibilities assumed by teachers and on particular conditions (*e.g.* additional management responsibilities or teaching in high-need regions, disadvantaged schools).
- Those based on the demographic characteristics of teachers (*e.g.* age and/or family status).
- Those based on teachers' qualifications, training and performance (*e.g.* higher than the minimum qualifications and/or completing professional development activities).

Data have not been collected on payment amounts but on whether they are available and on the level at which the decision to award such payments is taken (see Table D3.3a and Tables D3.3b, D3.3c and D3.3d available on line, as well as Annex 3 at *www.oecd.org/edu/eag2009*).

Additional payments are most often awarded for particular responsibilities or working conditions, such as teaching in more disadvantaged schools, particularly those located in very poor neighbourhoods or with a large proportion of students whose language is not the language of instruction. Such teachers face demands that teachers elsewhere may not encounter. These schools often have difficulty attracting teachers and are often more likely to have less experienced teachers (OECD, 2005c). These additional payments are provided yearly in about two-thirds of OECD and partner countries. Eleven countries also offer additional payments for teachers who teach in certain fields in which there are shortages of teachers and are made yearly in almost all of these countries.

Over half of OECD countries offer additional payments based on teachers' demographic characteristics and in most cases these are yearly payments. Additional payments based on teachers' qualifications, training and performance are also very common in OECD countries and partner countries. The most common types of payments based on teachers' initial education and qualifications are for an initial education qualification higher than the minimum requirement and/or a level of teacher certification and training higher than the minimum requirements. These are available in half of OECD countries and partner countries, with one-third offering both types; they are used in nearly all countries as criteria for base salary. Sixteen OECD countries

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and partner countries offer additional payments for the successful completion of professional development activities. In ten of these countries, they are used as criteria for the base salary, but in Korea and Turkey they are only offered on an incidental basis.

Fifteen OECD countries and three partner countries offer an additional payment for outstanding performance in teaching. This is the only additional payment that may be classified as a performance incentive. In nearly one-half of these countries they are incidental payments, and in the other half, they are mostly yearly additions to teachers' salaries. In 12 of the 18 countries that offer this incentive (Austria, the Czech Republic, Denmark, England, Finland, Hungary, Mexico, the Netherlands, New Zealand, Sweden and Turkey and the partner country Slovenia), the decision to award the additional payments can be made at the school level.

The method for identifying outstanding performance and the form of incentive varies. In Mexico, outstanding performance is calculated on the basis of students' achievements and criteria relating to teachers' experience, performance and qualification. In Portugal, it is based on the assessment of the head teacher and in Turkey on assessments by the provincial directorate of education and the Ministry of Education.

As may be expected, additional payments made due to the years of experience are, in virtually all OECD countries, made through changes to teachers' base salary. Additional payments made for specific teaching conditions or responsibilities are more commonly made through yearly or incidental payments. The key exception is when a teacher assumes management responsibilities with additional payments offered more frequently through changes to base salaries or yearly and incidental payments.

Mixtures of all three types of additional payment are offered in relation to teachers' qualifications, training and performance. Given that an initial teacher qualification higher than the minimum requirement is often identified at the beginning of a teacher's career, it is not surprising that it is more often provided through changes to teachers' base salaries. Additional payments due to teacher demographics are mainly made through additional yearly payments in 12 of the 16 countries offering a form of additional payment in this category.

Definitions and methodologies

Data on statutory teachers' salaries and bonuses are derived from the 2008 OECD-INES Survey on Teachers and the Curriculum. Data refer to the school year 2006/07, and are reported in accordance with formal policies for public institutions.

Statutory salaries (Table D3.1) refer to scheduled salaries according to official pay scales. The salaries reported are gross (total sum paid by the employer) less the employer's contribution to social security and pension (according to existing salary scales). Salaries are "before tax" (*i.e.* before deductions for income taxes). In Table D3.1, salary per hour of net contact divides a teacher's annual statutory salary (Table D3.1) by the annual net teaching time in hours (Table D4.1).

Gross teachers' salaries were converted using GDP and purchasing power parities (PPPs) and exchange rate data from the OECD National Accounts database. The reference date for GDP per capita is the calendar year 2007, while the period of reference for teachers' salaries is from 1 July 2006 to 30 June 2007. The reference date for PPPs is 2006/07. Data are adjusted for inflation

with reference to January 2007. For countries with different financial years (*i.e.* Australia and New Zealand) and slightly different salary periods (*e.g.* Hungary, Iceland, Norway and Spain) from the general OECD norm, a correction to the deflator is made only if this results in an adjustment of over 1%. Small adjustments have been discounted because even for salaries for 2005/06, the exact period to which they apply is only slightly different. Reference statistics and reference years for teachers' salaries are provided in Annex 2.

For the calculation of changes in teachers' salaries (Table D3.2), the GDP deflator is used to convert 1996 salaries to 2007 prices.

Starting salaries refer to the average scheduled gross salary per year for a full-time teacher with the minimum training necessary to be fully qualified at the beginning of the teaching career.

Salaries after 15 years of experience refer to the scheduled annual salary of a full-time classroom teacher with the minimum training necessary to be fully qualified plus 15 years of experience. The maximum salaries reported refer to the scheduled maximum annual salary (top of the salary scale) of a full-time classroom teacher with the minimum training to be fully qualified for the job.

An adjustment to base salary is defined as any difference in salary between what a particular teacher actually receives for work performed at a school and the amount that he or she would expect to receive on the basis of experience (*i.e.* number of years in the teaching profession). Adjustments may be temporary or permanent, and they can effectively move a teacher off the scale and to a different salary scale or to a higher step on the same salary scale.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink http://dx.doi.org/10.1787/665004614152

- ***Table D3.3b. Decisions made by school principal on payments for teachers in public institutions (2007)***
- ***Table D3.3c. Decisions made by local or regional authority on payments for teachers in public institutions (2007)***
- ***Table D3.3d. Decisions made by the national authority on payments for teachers in public institutions (2007)***

See also: OECD (2005c), *Teachers Matter: Attracting, Developing and Retaining Effective Teachers*, OECD, Paris.

Specific notes on definitions and methodologies regarding this indicator for each country are given in Annex 3 at *www.oecd.org/edu/eag2009*.

As a complement to Table D3.1, which presents teachers' salaries in equivalent USD, converted using PPPs, a table with teachers' salaries in equivalent EUR converted using PPPs is included in Annex 2.

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Table D3.1.

Teachers' salaries (2007)

Annual statutory teachers' salaries in public institutions at starting salary, after 15 years of experience and at the top of the scale by level of education, in equivalent USD converted using PPPs

		Primary education				Lower secondary education				Upper secondary education			
		Starting salary/ minimum training	Salary after 15 years of experience / minimum training	Salary at top of scale / minimum training	Ratio of salary after 15 years of experience to GDP per capita	Starting salary/ minimum training	Salary after 15 years of experience / minimum training	Salary at top of scale / minimum training	Ratio of salary after 15 years of experience to GDP per capita	Starting salary/ minimum training	Salary after 15 years of experience / minimum training	Salary at top of scale / minimum training	Ratio of salary after 15 years of experience to GDP per capita
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries	**Australia**	32 259	44 245	44 245	1.17	32 406	44 942	44 942	1.19	32 406	44 942	44 942	1.19
	Austria	28 172	37 307	55 852	1.01	29 446	40 304	58 046	1.09	29 863	41 469	61 170	1.12
	Belgium (Fl.)	29 680	41 605	50 744	1.17	29 680	41 605	50 744	1.17	36 850	53 233	64 007	1.50
	Belgium (Fr.)	28 369	39 885	48 774	1.13	28 369	39 885	48 774	1.13	35 260	51 195	61 674	1.45
	Czech Republic	21 481	29 127	35 551	1.21	21 481	29 127	35 551	1.21	22 798	31 119	38 208	1.29
	Denmark	35 691	40 322	40 322	1.12	35 691	40 322	40 322	1.12	35 011	49 264	49 264	1.37
	England	30 172	44 507	44 507	1.26	30 172	44 507	44 507	1.26	30 172	44 507	44 507	1.26
	Finland	28 201	36 578	46 003	1.06	31 282	39 144	49 534	1.13	31 846	43 040	55 778	1.24
	France	23 640	31 800	46 920	0.97	26 019	34 179	49 409	1.04	26 294	34 454	49 711	1.05
	Germany	43 387	53 345	57 630	1.56	47 936	57 978	65 004	1.69	51 512	62 372	71 546	1.82
	Greece	26 326	32 107	38 619	1.13	26 326	32 107	38 619	1.13	26 326	32 107	38 619	1.13
	Hungary	11 216	14 515	19 309	0.77	11 216	14 515	19 309	0.77	12 855	18 110	24 358	0.97
	Iceland	22 443	25 227	29 304	0.71	22 443	25 227	29 304	0.71	25 389	32 251	33 828	0.90
	Ireland	31 977	52 972	60 025	1.17	31 977	52 972	60 025	1.17	31 977	52 972	60 025	1.17
	Italy	24 945	30 174	36 765	0.99	26 877	32 859	40 351	1.08	26 877	33 778	42 179	1.11
	Japan	27 284	48 742	61 627	1.45	27 284	48 742	61 627	1.45	27 284	48 742	63 296	1.45
	Korea	31 717	54 798	87 745	2.21	31 590	54 671	87 617	2.20	31 590	54 671	87 617	2.20
	Luxembourg	49 902	68 720	101 707	0.86	71 883	89 864	124 898	1.13	71 883	89 864	124 898	1.13
	Mexico	14 006	18 420	30 579	1.32	17 957	23 455	38 851	1.68	m	m	m	m
	Netherlands	34 272	44 410	49 541	1.13	35 516	48 818	54 332	1.24	35 858	63 169	71 738	1.61
	New Zealand	19 236	37 213	37 213	1.36	19 236	37 213	37 213	1.36	19 236	37 213	37 213	1.36
	Norway	32 148	36 298	40 163	0.68	32 148	36 298	40 163	0.68	34 336	38 684	42 325	0.72
	Poland	m	m	m	m	m	m	m	m	m	m	m	m
	Portugal	21 304	34 876	54 698	1.52	21 304	34 876	54 698	1.52	21 304	34 876	54 698	1.52
	Scotland	30 366	48 436	48 436	1.37	30 366	48 436	48 436	1.37	30 366	48 436	48 436	1.37
	Slovak Republic	m	m	m	m	m	m	m	m	m	m	m	m
	Spain	34 250	39 912	49 466	1.26	38 533	44 774	54 648	1.42	39 367	45 786	55 779	1.45
	Sweden	27 498	31 996	36 750	0.87	28 055	32 799	37 200	0.90	29 554	35 005	39 813	0.96
	Switzerland	41 998	54 339	66 906	1.32	48 286	62 183	75 577	1.51	56 166	72 990	86 732	1.78
	Turkey	14 063	15 693	17 515	1.21	a	a	a	a	14 063	15 693	17 515	1.21
	United States	35 907	43 633	m	0.96	34 519	44 015	m	0.97	34 672	43 966	m	0.97
	OECD average	***28 687***	***39 007***	***47 747***	***1.17***	***31 000***	***41 993***	***51 470***	***1.23***	***32 183***	***44 782***	***54 440***	***1.30***
	EU 19 average	***29 518***	***39 610***	***48 506***	***1.14***	***31 691***	***42 056***	***51 285***	***1.19***	***32 946***	***45 513***	***55 600***	***1.29***
Partner countries	**Brazil**	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	10 922	12 976	17 500	1.11	10 922	12 976	17 500	1.11	10 922	13 579	18 321	1.16
	Estonia	10 459	9 419	13 015	0.46	10 459	9 419	13 015	0.46	10 459	9 419	13 015	0.46
	Israel	14 099	16 466	23 009	0.62	14 099	16 466	23 009	0.62	14 099	16 466	23 009	0.62
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m
	Slovenia	27 190	31 754	33 630	1.19	27 190	31 754	33 630	1.19	27 190	31 754	33 630	1.19

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/665004614152

Table D3.1. *(continued)*

Teachers' salaries (2007)

Annual statutory teachers' salaries in public institutions at starting salary, after 15 years of experience and at the top of the scale by level of education, in equivalent USD converted using PPPs

	Ratio of salary at top of scale to starting salary			Years from starting to top salary (lower secondary education)	Salary per hour of net contact (teaching) time after 15 years of experience			Ratio of salary per teaching hour of upper secondary to primary teachers (after 15 years of experience)
	Primary education	Lower secondary education	Upper secondary education		Primary education	Lower secondary education	Upper secondary education	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD countries								
Australia	1.37	1.39	1.39	9	50	55	55	1.10
Austria	1.98	1.97	2.05	34	48	66	70	1.46
Belgium (Fl.)	1.71	1.71	1.74	27	52	60	83	1.60
Belgium (Fr.)	1.72	1.72	1.75	27	55	60	85	1.54
Czech Republic	1.65	1.65	1.68	32	34	46	51	1.49
Denmark	1.13	1.13	1.41	8	62	62	135	2.18
England	1.48	1.48	1.48	10	m	m	m	m
Finland	1.63	1.58	1.75	16	54	66	78	1.45
France	1.98	1.90	1.89	34	35	54	56	1.60
Germany	1.33	1.36	1.39	28	66	76	87	1.32
Greece	1.47	1.47	1.47	33	43	64	67	1.57
Hungary	1.72	1.72	1.89	40	25	26	33	1.31
Iceland	1.31	1.31	1.33	18	38	38	58	1.53
Ireland	1.88	1.88	1.88	22	56	72	72	1.29
Italy	1.47	1.50	1.57	35	41	55	56	1.37
Japan	2.26	2.26	2.32	34	69	81	98	1.41
Korea	2.77	2.77	2.77	37	73	100	114	1.57
Luxembourg	2.04	1.74	1.74	30	89	140	140	1.58
Mexico	2.18	2.16	m	14	23	22	m	m
Netherlands	1.45	1.53	2.00	17	48	m	m	m
New Zealand	1.93	1.93	1.93	8	38	38	39	1.04
Norway	1.25	1.25	1.23	16	49	56	74	1.51
Poland	m	m	m	m	m	m	m	m
Portugal	2.57	2.57	2.57	26	41	46	51	1.25
Scotland	1.60	1.60	1.60	6	57	57	57	1.00
Slovak Republic	m	m	m	m	m	m	m	m
Spain	1.44	1.42	1.42	38	45	63	66	1.46
Sweden	m	m	m	a	m	m	m	m
Switzerland	1.59	1.57	1.54	26	m	m	m	m
Turkey	1.25	a	1.25	a	25	a	28	1.13
United States	m	m	m	m	w	w	w	w
OECD average	***1.71***	***1.71***	***1.73***	***24***	***49***	***61***	***72***	***1.42***
EU 19 average	***1.68***	***1.66***	***1.74***	***26***	***50***	***63***	***74***	***1.47***
Partner countries								
Brazil	m	m	m	m	m	m	m	m
Chile	1.60	1.60	1.68	m	15	15	16	1.05
Estonia	1.24	1.24	1.24	m	15	15	16	1.09
Israel	1.63	1.63	1.63	36	16	21	25	1.54
Russian Federation	m	m	m	m	m	m	m	m
Slovenia	1.24	1.24	1.24	13	47	47	51	1.09

Note: Ratio of salary at the top of the scale has not been calculated for Sweden because the underlying salaries are estimates derived from actual rather than statutory salaries.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/665004614152

Table D3.2.

Change in teachers' salaries (between 1996 and 2007)

Index of change[1] between 1996 and 2007 in teachers' salaries at starting salary, after 15 years of experience and at the top of the salary scale, by level of education, converted to 2007 price levels using GDP deflators (1996=100)

		Primary education			Lower secondary education			Upper secondary education, general programmes		
		Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/minimum training	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/minimum training	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/minimum training
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	Australia	129	97	97	129	99	99	129	99	99
	Austria	109	112	107	110	116	104	105	109	97
	Belgium (Fl.) [2]	106	111	113	104	104	104	104	104	104
	Belgium (Fr.) [2]	101	106	109	99	99	100	99	100	100
	Czech Republic	w	w	w	w	w	w	w	w	w
	Denmark	122	113	110	122	113	110	109	108	103
	England	123	108	108	123	108	108	123	108	108
	Finland	130	127	156	128	115	139	126	121	148
	France	w	w	w	w	w	w	w	w	w
	Germany	w	w	w	w	w	w	w	w	w
	Greece	112	115	117	109	112	115	109	112	115
	Hungary	195	186	192	195	186	192	175	187	201
	Iceland	m	m	m	m	m	m	m	m	m
	Ireland	114	122	117	109	116	116	109	116	116
	Italy	109	110	110	109	109	109	109	108	109
	Japan	107	112	99	107	112	99	107	112	99
	Korea	w	w	w	w	w	w	w	w	w
	Luxembourg	m	m	m	m	m	m	m	m	m
	Mexico	131	130	132	132	136	139	m	m	m
	Netherlands	106	112	102	104	114	102	104	105	101
	New Zealand	100	114	114	100	114	114	100	114	114
	Norway	108	100	110	108	100	110	107	104	106
	Poland	m	m	m	m	m	m	m	m	m
	Portugal	102	111	101	102	111	101	102	111	101
	Scotland	120	115	115	120	115	115	120	115	115
	Slovak Republic	m	m	m	m	m	m	m	m	m
	Spain	94	93	90	m	m	m	93	92	90
	Sweden	w	w	w	w	w	w	w	w	w
	Switzerland	99	96	102	m	m	m	m	m	m
	Turkey	w	w	w	a	a	a	w	w	w
	United States	112	108	m	109	109	m	109	108	m
Partner countries	Brazil	m	m	m	m	m	m	m	m	m
	Chile	m	m	m	m	m	m	m	m	m
	Estonia	159	134	173	159	134	173	159	134	173
	Israel	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m
	Slovenia	m	m	m	m	m	m	m	m	m

1. The index is calculated as (teacher salary 2007 in national currency * 100) / (Teacher salary 1996 in national currency * GDP deflator 2007) (1996=100). See Annex 2 for statistics on GDP deflators and salaries in national currencies in 1996 and 2007.
2. The data for Belgium in 1996 are based on Belgium as a whole.

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/665004614152

D3

Table D3.3a.

Decisions on payments for teachers in public institutions (2007)

Criteria for base salary and additional payments awarded to teachers in public institutions

		Experience			Criteria based on teaching conditions/ responsibilities																			
		Years of experience as a teacher			Management responsibilities in addition to teaching duties			Teaching more classes or hours than required by full-time contract			Special tasks (career guidance or counselling)			Teaching in a disadvantaged, remote or high cost area (location allowance)			Special activities (*e.g.* sports and drama clubs, homework clubs, summer school etc.)			Teaching students with special educational needs (in regular schools)			Teaching courses in a particular field		
OECD countries	Australia	–			–										▲						▲				
	Austria	–	▲			▲			▲			▲							△						
	Belgium (Fl.)	–								△															
	Belgium (Fr.)	–											△												
	Czech Republic	–	▲	△	–	▲	△		▲	△		▲	△					▲	△	–	▲	△			
	Denmark	–	▲	△	–	▲	△		▲	△		▲	△	–	▲	△		▲	△		▲	△		▲	△
	England	–	▲	△	–	▲	△							–	▲	△				–	▲	△	–	▲	△
	Finland		▲		–	▲			▲	△		▲	△	–	▲			▲	△		▲		–	▲	△
	France	–				▲	△		▲	△		▲	△	–	▲				△	–					
	Germany	–			–					△															
	Greece	–								△			△		▲										
	Hungary	–				▲				△		▲			▲				△		▲				△
	Iceland	–	▲	△	–	▲	△		▲	△	–	▲	△					▲	△	–	▲	△			
	Ireland	–	▲	△	–	▲								–	▲										
	Italy	–					△			△			△		▲				△						
	Japan	–				▲			▲						▲			▲			▲				
	Korea	–				▲				△						△					▲			▲	
	Luxembourg	–								△			△												
	Mexico	–	▲	△	–	▲		–	▲		–	▲		–	▲								–	▲	
	Netherlands	–	▲	△	–	▲	△	–	▲	△	–	▲	△	–	▲	△	–	▲	△	–	▲	△	–	▲	△
	New Zealand	–				▲						▲			▲			▲			▲			▲	
	Norway	–				▲				△	–	▲	△		▲			▲	△						
	Poland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Portugal	–				▲				△		▲								–					
	Scotland	–													▲										
	Slovak Republic	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Spain	–				▲									▲										
	Sweden	–			–					△				–									–		
	Switzerland	–			–					△			△						△	–					
	Turkey	–								△			△		▲				△						
	United States	–				▲									▲			▲						▲	
Partner countries	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	–				▲									▲										
	Estonia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Israel	–			–			–			–			–						–					
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Slovenia	–			–					△			△		▲				△		▲			▲	

– : Decisions on position in base salary scale
▲ : Decisions on supplemental payments which are paid every year
△ : Decisions on supplemental incidental payments

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/665004614152

Table D3.3a. *(continued)*

Decisions on payments for teachers in public institutions (2007)

Criteria for base salary and additional payments awarded to teachers in public institutions

		Criteria related to teachers' qualifications, training and performance																		Criteria based on demography								
		Holding an initial educational qualification higher than the minimum qualification required to enter the teaching profession			Holding a higher than minimum level of teacher certification or training obtained during professional life			Outstanding performance in teaching			Successful completion of professional development activities			Reaching high scores in the qualification examination			Holding an educational qualification in multiple subjects			Family status (married, number of children)			Age (independent of years of teaching experience)			Other		
OECD countries	Australia	–			–																▲							
	Austria									△											▲						▲	
	Belgium (Fl.)	–				▲																					▲	
	Belgium (Fr.)	–			–																						▲	△
	Czech Republic							–	▲	△														–		△		
	Denmark	–	▲	△	–	▲	△		▲	△		▲	△				–	▲	△									
	England	–	▲	△				–	▲	△																		
	Finland	–	▲						▲			▲					–											
	France										–										▲							
	Germany																			–				–				
	Greece	–				▲															▲							
	Hungary	–			–					△	–			–				▲						–				
	Iceland	–	▲	△	–	▲	△					▲	△			△			△					–	▲			
	Ireland	–	▲		–	▲																						
	Italy																			–								
	Japan																				▲						▲	
	Korea									△			△									△			▲			
	Luxembourg				–						–										▲			–				
	Mexico	–	▲		–	▲		–	▲		–	▲		–	▲													
	Netherlands	–	▲	△	–	▲	△	–	▲	△	–	▲	△	–	▲	△	–	▲	△									
	New Zealand	–			–				▲																		▲	
	Norway	–	▲			▲			▲			▲			▲			▲							▲			
	Poland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Portugal	–			–			–			–			–							▲							
	Scotland				–																							
	Slovak Republic	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Spain					▲					–																	
	Sweden	–			–			–			–			–														
	Switzerland																				▲						▲	
	Turkey	–						–					△								▲						▲	
	United States		▲			▲				△																		
Partner countries	Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Chile									△																		
	Estonia	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Israel	–						–			–																	
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Slovenia		▲		–					△	–																▲	

– : Decisions on position in base salary scale
▲ : Decisions on supplemental payments which are paid every year
△ : Decisions on supplemental incidental payments

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/665004614152

INDICATOR D4

HOW MUCH TIME DO TEACHERS SPEND TEACHING?

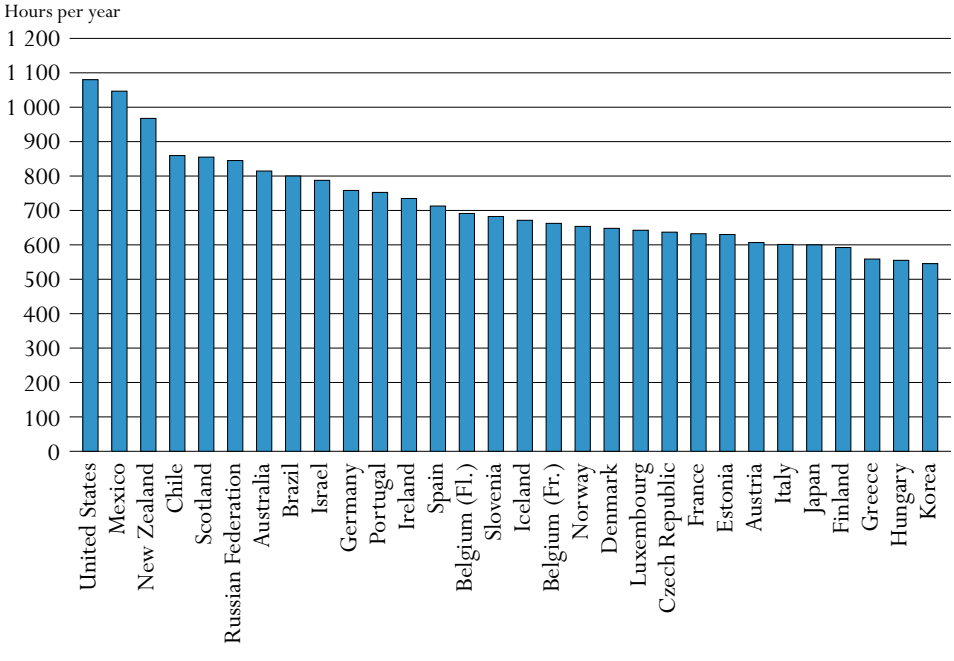
This indicator focuses on the statutory working time and statutory teaching time of teachers at different levels of education. Although working time and teaching time only partly determine teachers' actual workload, they do give valuable insight into differences in what is demanded of teachers in different countries. Together with teachers' salaries (see Indicator D3) and average class size (see Indicator D2), this indicator presents some key measures of the working lives of teachers.

Key results

Chart D4.1. Number of teaching hours per year in lower secondary education (2007)

Net contact time in hours per year in public institutions

The number of teaching hours in public lower secondary schools averages 709 hours per year but ranges from 545 hours in Korea to over 1 000 in Mexico (1 047) and the United States (1 080).



Countries are ranked in descending order of the number of teaching hours per year in lower secondary education.
Source: OECD. Table D4.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Other highlights of this indicator

- The number of teaching hours in public primary schools averages 798 per year (14 less than in 2006), but ranges from less than 650 in Denmark, Hungary, Turkey and the partner country Estonia to 1 080 in the United States.
- The average number of teaching hours in upper secondary general education is 653, but ranges from 364 in Denmark to 1 080 in the United States.
- The composition of teachers' annual teaching time, in terms of days, weeks and hours per day, varies considerably. For instance, while teachers in Denmark teach for 42 weeks per year (in primary and secondary education) and teachers in Iceland for 35-36 weeks per year, teachers in Iceland have more total annual teaching time (in hours) than teachers in Denmark.
- Regulations concerning teachers' required working time also vary. In most countries, teachers are formally required to work a specific number of hours; in some, teaching time is only specified by the number of lessons per week and assumptions may be made about the amount of non-teaching time required per lesson (at school or elsewhere). For example, in Belgium (French Community), additional non-teaching hours at school are set at the school level; the government only defines the minimum and maximum number of teaching periods per week at each level of education.

Policy context

In addition to class size and the ratio of students to teaching staff (see Indicator D2), students' hours of instruction (see Indicator D1) and teachers' salaries (see Indicator D3), the amount of time teachers spend teaching affects the financial resources countries need to allocate to education (see Indicator B7). Teaching hours and the extent of non-teaching duties are also important elements of teachers' work and may determine the attractiveness of the teaching profession.

The proportion of working time spent teaching provides information on the amount of time available for activities such as lesson preparation, correction, in-service training and staff meetings. A large proportion of working time spent teaching may indicate that less working time is devoted to tasks such as student assessment and lesson preparation. However, such duties may be performed at the same level as for teachers with less teaching time but outside of regulatory working hours.

Evidence and explanations

Teaching time in primary education

In both primary and secondary education, countries vary in terms of the number of teaching hours required of the average public school teacher per year. There are usually more teaching hours in primary education than in secondary education.

A primary school teacher teaches an average of 798 hours per year (14 less than in 2006), but this ranges from less than 650 hours in Denmark, Hungary, Turkey and the partner country Estonia to 900 or more in France, Ireland, the Netherlands and New Zealand and over 1 000 in the United States and in partner country Israel (Chart D4.2 and Table D4.1).

Teaching time can be distributed quite differently throughout the year. Korea is the only country in which primary teachers teach for more than five days per week on average, yet their total annual teaching time is below the average because they teach, on average, fewer hours per day. Denmark and Iceland provide an interesting contrast in this respect. They have a similar annual net teaching time in hours (Chart D4.2). However, teachers in Denmark must complete 200 days of instruction in 42 weeks, and those in Iceland 180 days in 36 weeks. The number of hours taught per day of instruction explains the difference.

Primary teachers in Iceland complete 20 fewer days of instruction than teachers in Denmark, but each of these days includes, on average, 3.7 hours of teaching compared to 3.2 in Denmark. Iceland's teachers must provide just over half an hour more teaching time per day of instruction than Denmark's teachers, but this relatively small difference leads to a substantial difference in the number of days of instruction they must complete each year.

With the exception of Austria, Belgium (French Community), Portugal and Scotland, in most OECD countries with available data, teaching time in primary education was about the same in 1996 and 2007. In Austria, primary teachers were required to teach 13% more in 2007 than in 1996, while in Belgium (French Community) the net contract time dropped by 16% in primary education (Table D4.2).

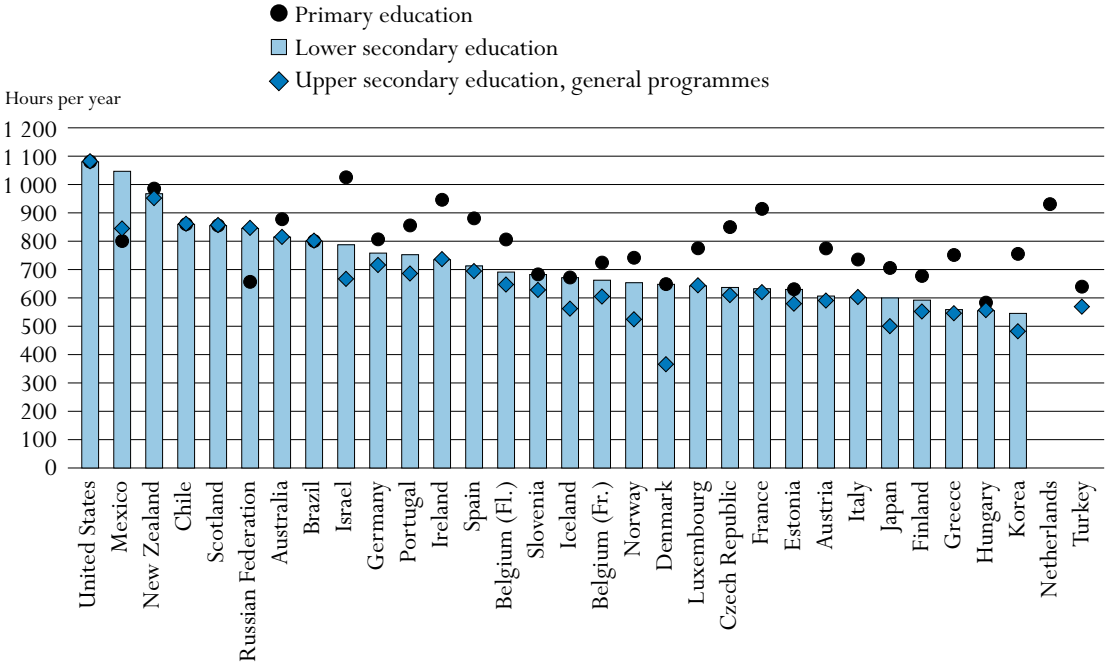
Teaching time in secondary education

Lower secondary education teachers teach an average of 709 hours per year. The teaching load ranges from less than 600 hours in Finland (592), Greece (559), Hungary (555) and Korea (545) to more than 1 000 hours in Mexico (1 047) and the United States (1 080) (Chart D4.1 and Table D4.1).

The upper secondary general education teaching load is usually lighter than in lower secondary education. A teacher of general subjects has an average statutory teaching load of 653 hours per year. Teaching loads range from 364 hours in Denmark to 800 or more in Australia (813), Mexico (843), Scotland (855) and the partner countries Brazil (800), Chile (860) and the Russian Federation (845), over 900 in New Zealand (950) and over 1 000 in the United States (1 080) (Chart D4.2 and Table D4.1).

Chart D4.2. Number of teaching hours per year, by level of education (2007)

Net contact time in hours per year in public institutions



Countries are ranked in descending order of the number of teaching hours per year in lower secondary education.

Source: OECD. Table D4.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

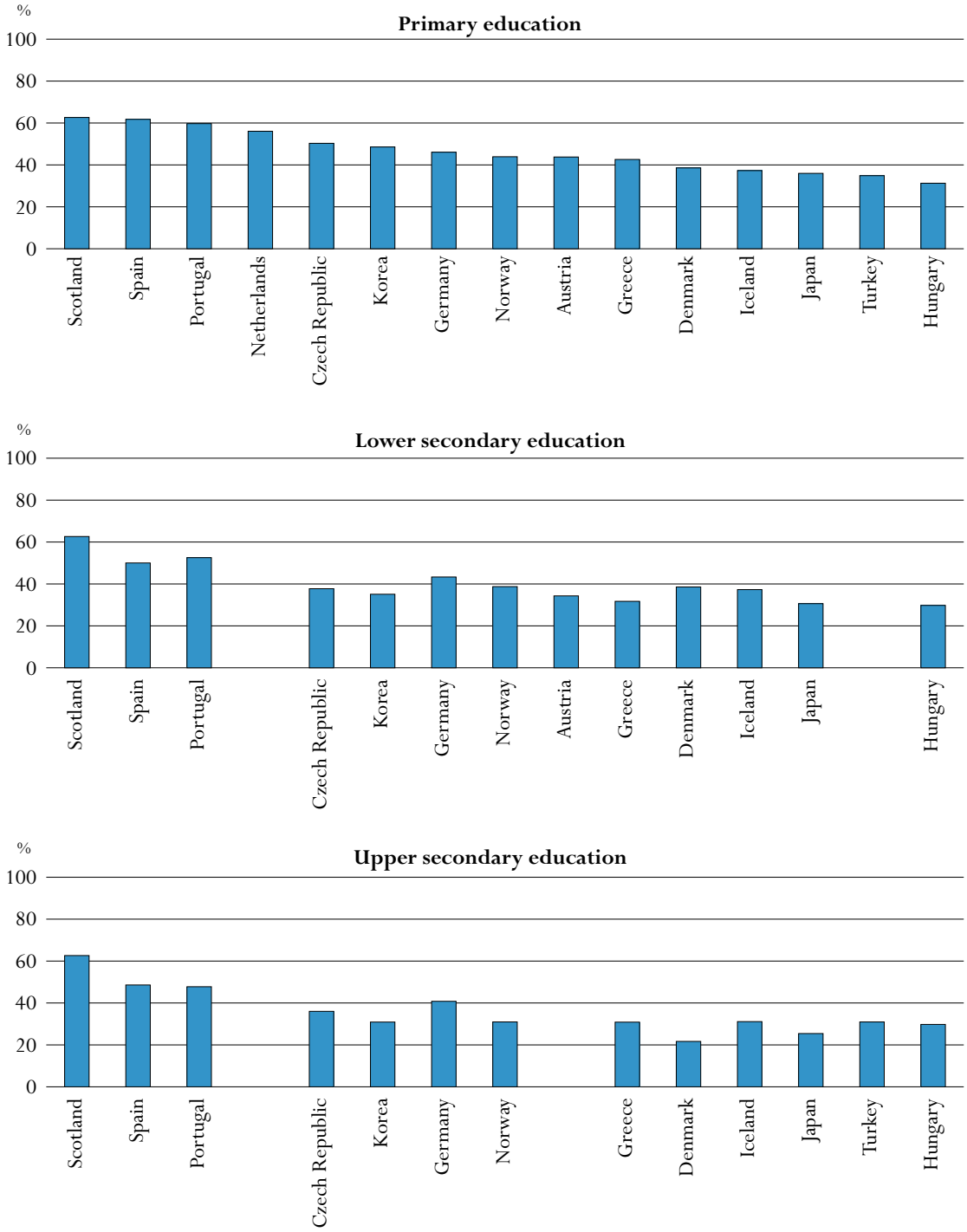
StatLink http://dx.doi.org/10.1787/665026260448

As for primary teachers, the number of hours of teaching time and the number of days of instruction vary. As a consequence, the average hours per day that teachers teach also vary widely, ranging at the lower secondary level from three or fewer per day in Greece, Hungary, Japan and Korea to five or more in Mexico and New Zealand and the partner country the Russian Federation, and six in the United States. Similarly, at the upper secondary general level, teachers in Denmark, Finland, Greece, Hungary, Japan, Korea and Norway teach for three hours (or less) per day on average, compared to five hours in New Zealand and, among the partner countries, the Russian Federation and six hours in the United States. Korea provides an interesting example of the differences in the organisation of teachers' work. Korea's teachers must complete the largest number of days of instruction (204) but have the lowest required number of hours of teaching time for lower secondary teachers and the second lowest for upper secondary teachers (Chart D4.3). The inclusion of breaks between classes in teaching time in some countries, but not in others may explain some of these differences.

D4

Chart D4.3. Percentage of teachers' working time spent teaching, by level of education (2007)

Net teaching time as a percentage of total statutory working time



Countries are ranked in descending order of the percentage of teachers' working time spent teaching in primary education.
Source: OECD. Table D4.1. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

StatLink http://dx.doi.org/10.1787/665026260448

With the exception of Austria, Belgium (French Community), Germany, Greece, Hungary, Mexico and Portugal, teaching time in secondary education in OECD countries was about the same in 1996 and 2007. However, in Hungary and Portugal secondary teachers were required to teach more than 17% more in 2007 than in 1996. In Denmark, teaching time dropped by 35% in upper secondary education (Table D4.2).

Teaching time contrasts between levels

In the Czech Republic and France and in the partner country Israel a primary teacher is required to teach over 210 hours more than a lower secondary teacher and 240 hours more than an upper secondary teacher (general programmes). By contrast, there is less than a 60 hour or even no difference between the number of required teaching hours for primary and lower secondary teachers and sometimes also for primary and upper secondary teachers in Hungary, New Zealand, Scotland and the United States, and the partner countries Brazil, Chile, Estonia and Slovenia. Mexico is the only OECD country and the Russian Federation the only partner country, in which secondary teachers complete a substantially larger number of hours of teaching than primary teachers. In Mexico, required teaching hours for lower secondary teachers are just over 30% more than for primary teachers. Upper secondary teachers in Mexico have a smaller number of teaching hours than lower secondary teachers but their required teaching hours are still 5% higher than for primary teachers (Chart D4.1). This is largely because of greater daily contact time.

In interpreting differences in teaching hours among countries, it should be noted that net contact time, as used for the purpose of this indicator, does not necessarily correspond to the teaching load. Contact time is a substantial component, but preparation for classes and necessary follow-up (including correcting students' work) also need to be included in comparisons of teaching loads. Other relevant elements (such as the number of subjects taught, the number of students taught, and the number of years a teacher teaches the same students) should also be taken into account. These factors can often only be assessed at the school level.

Teachers' working time

The regulation of teachers' working time varies considerably. While some countries formally regulate contact time only, others also establish working hours. In some countries, time is allocated for teaching and non-teaching activities within the formally established working time.

In most countries, teachers are formally required to work a specified number of hours per week to earn their full-time salary; this includes teaching and non-teaching time. Within this framework, however, countries differ in the allocation of time to teaching and non-teaching activities (Chart D4.3). Typically, the number of hours for teaching is specified (except in England and Sweden and in Switzerland where it is specified at the district level only), but some countries also regulate at the national level the time a teacher has to be present in the school.

Australia, Belgium (Flemish Community for primary education), Denmark (primary and lower secondary education), England, Greece, Iceland, Ireland, Luxembourg, Mexico, New Zealand, Norway, Portugal, Spain, Sweden, Turkey (primary and upper secondary education) and the United States, and the partner countries Brazil, Chile, Estonia and Israel specify the time during which teachers are required to be available at school, for both teaching and non-teaching time.

Greece requires a reduction of teaching hours in line with years of service. Early-career teachers have 21 teaching hours per week. After 6 years, this drops to 19 and after 12 years to 18. After 20 years of service, teachers have 16 teaching hours a week, nearly three-quarters that of early career teachers. However, the remaining hours of teachers' working time must be spent at school.

In Austria (primary and lower secondary education), the Czech Republic, Germany, Hungary, Japan, Korea, the Netherlands and Scotland teachers' total annual working time, at school or elsewhere, is specified (but the split between time spent at school and time spent elsewhere is not). In addition, in some countries the number of hours to be spent on non-teaching activities is also (partly) specified. However, it is not specified whether or not the teachers have to spend the non-teaching hours at school.

Non-teaching time

In Belgium (French Community), Finland, France, Italy and New Zealand and in partner countries the Russian Federation and Slovenia, there are no formal requirements for primary and secondary education as to how much time should be spent on non-teaching duties. However, this does not mean that teachers are given total freedom to carry out other tasks. In Austria, provisions concerning teaching time are based on the assumption that the teacher's duties (including preparing lessons and tests, marking and correcting papers, examinations, and administrative tasks) amount to total working time of 40 hours a week. In Belgium (French Community), the additional non-teaching hours at school are set at the school level. There are no regulations regarding lesson preparation, correction of tests and marking students' papers, etc. The government defines only the minimum and maximum number of teaching periods a week (of 50 minutes each) at each level of education (Table D4.1).

Definitions and methodologies

Data are from the 2008 OECD-INES Survey on Teachers and the Curriculum and refer to the school year 2006/07.

Teaching time

Teaching time is defined as the number of hours per year that a full-time teacher teaches a group or class of students as set by policy. It is normally calculated as the number of teaching days per year multiplied by the number of hours a teacher teaches per day (excluding periods of time formally allowed for breaks between lessons or groups of lessons). Some countries, however, provide estimates of teaching time based on survey data.

At the primary level, short breaks between lessons are included if the classroom teacher is responsible for the class during these breaks.

Working time

Working time refers to the normal working hours of a full-time teacher. According to a country's formal policy, working time can refer to:

- The time directly associated with teaching (and other curricular activities for students, such as assignments and tests, but excluding annual examinations).

- The time directly associated with teaching and hours devoted to other activities related to teaching, such as lesson preparation, counselling students, correcting assignments and tests, professional development, meetings with parents, staff meetings, and general school tasks.

Working time does not include paid overtime.

Working time in school

Working time in school refers to the time teachers are required to spend at work, including teaching and non-teaching time.

Number of teaching weeks and days

The number of teaching weeks refers to the number of weeks of instruction excluding holiday weeks. The number of teaching days is the number of teaching weeks multiplied by the number of days per week a teacher teaches, less the number of days on which the school is closed for holidays.

Table D4.1.

Organisation of teachers' working time (2007)

Number of teaching weeks, teaching days, net teaching hours, and teacher working time over the school year

	Number of weeks of instruction			Number of days of instruction			Net teaching time in hours			Working time required at school in hours			Total statutory working time in hours		
	Primary education	Lower secondary education	Upper secondary education, general programmes	Primary education	Lower secondary education	Upper secondary education, general programmes	Primary education	Lower secondary education	Upper secondary education, general programmes	Primary education	Lower secondary education	Upper secondary education, general programmes	Primary education	Lower secondary education	Upper secondary education, general programmes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD countries															
Australia	40	40	40	197	197	197	877	815	813	1208	1230	1230	a	a	a
Austria	38	38	38	180	180	180	774	607	589	a	a	a	1768	1768	a
Belgium (Fl.)	37	37	37	179	180	180	806	691	645	931	a	a	a	a	a
Belgium (Fr.)	37	37	37	181	181	181	724	662	603	a	a	a	a	a	a
Czech Republic	40	40	40	193	193	193	849	637	608	a	a	a	1688	1688	1688
Denmark	42	42	42	200	200	200	648	648	364	1306	1306	m	1680	1680	1680
England	38	38	38	190	190	190	m	m	m	1265	1265	1265	1265	1265	1265
Finland	38	38	38	188	188	188	677	592	550	a	a	a	a	a	a
France	35	35	35	m	m	m	914	632	618	a	a	a	a	a	a
Germany	40	40	40	193	193	193	806	758	714	a	a	a	1750	1750	1750
Greece	40	38	38	195	185	185	751	559	544	1500	1425	1425	1762	1762	1762
Hungary	37	37	37	185	185	185	583	555	555	a	a	a	1864	1864	1864
Iceland	36	36	35	180	180	175	671	671	560	1650	1650	1720	1800	1800	1800
Ireland	37	33	33	183	167	167	946	735	735	1036	735	735	a	a	a
Italy	38	38	38	167	167	167	735	601	601	a	a	a	a	a	a
Japan	40	40	40	200	200	198	705	600	498	a	a	a	1960	1960	1960
Korea	37	37	37	204	204	204	755	545	480	a	a	a	1554	1554	1554
Luxembourg	36	36	36	176	176	176	774	642	642	1022	890	890	a	a	a
Mexico	42	42	36	200	200	172	800	1047	843	800	1167	971	a	a	a
Netherlands	40	m	m	195	m	m	930	m	m	a	a	a	1659	1659	1659
New Zealand	39	39	38	197	194	190	985	968	950	985	968	950	a	a	a
Norway	38	38	38	190	190	190	741	654	523	1300	1225	1150	1688	1688	1688
Poland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Portugal	37	37	37	171	171	171	855	752	684	1261	1261	1261	1432	1432	1432
Scotland	38	38	38	190	190	190	855	855	855	a	a	a	1365	1365	1365
Slovak Republic	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Spain	37	37	36	176	176	171	880	713	693	1140	1140	1140	1425	1425	1425
Sweden	a	a	a	a	a	a	a	a	a	1360	1360	1360	1767	1767	1767
Switzerland	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Turkey	38	a	38	180	a	180	639	a	567	870	a	756	1832	a	1832
United States	36	36	36	180	180	180	1080	1080	1080	1332	1368	1368	a	a	a
OECD average	***38***	***38***	***38***	***187***	***186***	***184***	***798***	***709***	***653***	***1185***	***1214***	***1159***	***1662***	***1652***	***1656***
EU 19 average	***38***	***38***	***38***	***185***	***183***	***182***	***794***	***665***	***625***	***1202***	***1173***	***1154***	***1619***	***1619***	***1605***
Partner countries															
Brazil	40	40	40	200	200	200	800	800	800	800	800	800	800	800	800
Chile	40	40	40	191	191	191	860	860	860	1152	1152	1152	a	a	a
Estonia	39	39	39	175	175	175	630	630	578	1540	1540	1540	a	a	a
Israel	43	42	42	183	175	175	1025	788	665	1221	945	945	a	a	a
Russian Federation	34	35	35	164	169	169	656	845	845	a	a	a	a	a	a
Slovenia	40	40	40	188	188	188	682	682	626	a	a	a	a	a	a

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009).*
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/665026260448

Table D4.2.

Number of teaching hours per year (1996, 2007)

Net contact time in hours per year in public institutions by level of education, and index of change from 1996 to 2007

		Primary education			Lower secondary education			Upper secondary education, general programmes		
		2007	1996	Index of change 1996-2007 (1996=100)	2007	1996	Index of change 1996-2007 (1996=100)	2007	1996	Index of change 1996-2007 (1996=100)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	**Australia**	877	m	m	815	m	m	813	m	m
	Austria	774	684	113	607	658	92	589	623	95
	Belgium (Fl.)	806	841	96	691	724	95	645	679	95
	Belgium (Fr.)	724	858	84	662	734	90	603	677	89
	Czech Republic	849	m	m	637	607	105	608	580	105
	Denmark	648	640	101	648	640	101	364	560	65
	England	m	w	m	m	w	m	m	m	m
	Finland	677	m	m	592	m	m	550	m	m
	France	914	900	102	632	647	98	618	w	m
	Germany	806	772	104	758	715	106	714	671	106
	Greece	751	780	96	559	629	89	544	629	86
	Hungary	583	w	m	555	473	117	555	473	117
	Iceland	671	m	m	671	m	m	560	m	m
	Ireland	946	915	103	735	735	100	735	735	100
	Italy	735	735	100	601	601	100	601	601	100
	Japan	705	m	m	600	m	m	498	m	m
	Korea	755	m	m	545	w	m	480	w	m
	Luxembourg	774	m	m	642	m	m	642	m	m
	Mexico	800	800	100	1047	1182	89	843	m	m
	Netherlands	930	930	100	m	867	m	m	867	m
	New Zealand	985	985	100	968	968	100	950	950	100
	Norway	741	713	104	654	633	103	523	505	104
	Poland	m	m	m	m	m	m	m	m	m
	Portugal	855	783	109	752	644	117	684	574	119
	Scotland	855	975	88	855	m	m	855	917	93
	Slovak Republic	m	m	m	m	m	m	m	m	m
	Spain	880	900	98	713	a	m	693	630	110
	Sweden	a	624	m	a	576	m	a	528	m
	Switzerland	m	871	m	m	850	m	m	669	m
	Turkey	639	m	m	a	a	a	567	m	m
	United States	1080	w	m	1080	w	m	1080	w	m
	OECD average	***798***	***817***		***709***	***716***		***653***	***659***	
	EU 19 average	***794***	***810***		***665***	***661***		***625***	***650***	
Partner countries	**Brazil**	800	m	m	800	m	m	800	m	m
	Chile	860	m	m	860	m	m	860	m	m
	Estonia	630	m	m	630	m	m	578	m	m
	Israel	1025	m	m	788	m	m	665	m	m
	Russian Federation	656	m	m	845	m	m	845	m	m
	Slovenia	682	m	m	682	m	m	626	m	m

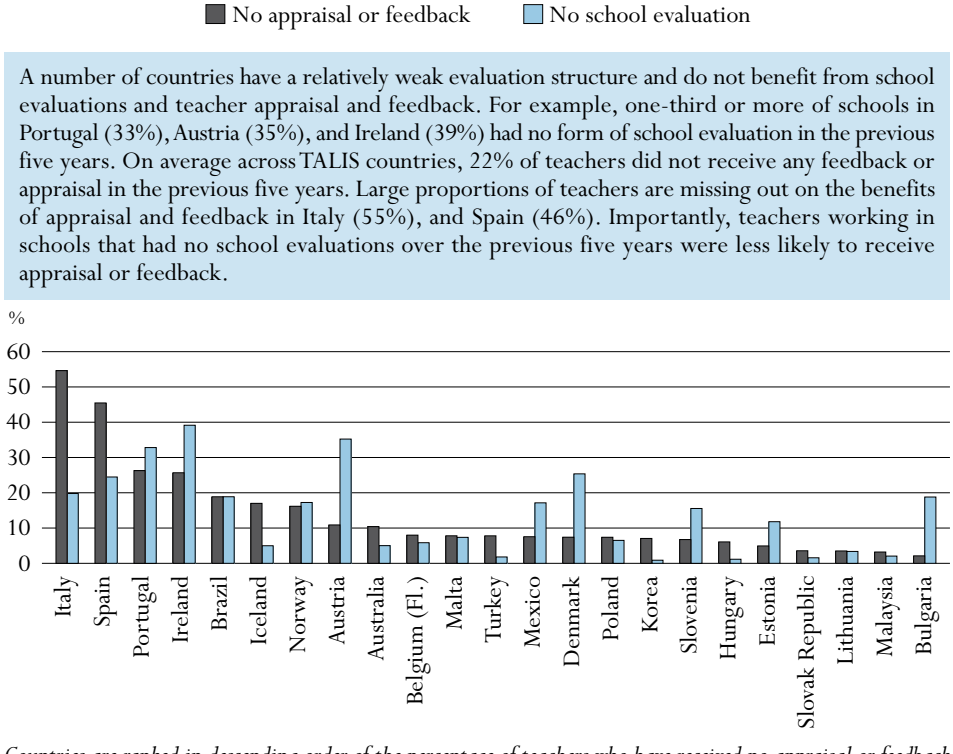
Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/665026260448

HOW MUCH APPRAISAL AND FEEDBACK DO TEACHERS RECEIVE, AND WHAT IS THE IMPACT?

This indicator focuses on the appraisal and feedback that teachers receive and the impact that this has on schools and teachers at the lower secondary level of education. Evaluation can play a key role in school improvement and teacher development (OECD, 2008c). Providing feedback can help teachers to better understand their respective strengths and weaknesses which, in turn, can be an important first step towards the improvement of classroom practices. Identifying such strengths and weaknesses, informing resource allocation decisions, and motivating actors to improve performance are important features that can promote policy objectives such as school improvement, school accountability, and school choice. Data were collected from both school principals and teachers in TALIS (Teaching and Learning International Survey) on these and related issues such as the recognition and rewards that teachers receive. Analysis of this data has produced a number of important findings for all stakeholders in school education.

Key results

Chart D5.1. Teachers who received no appraisal or feedback and teachers in schools that had no school evaluation in the previous five years (2007-08)



A number of countries have a relatively weak evaluation structure and do not benefit from school evaluations and teacher appraisal and feedback. For example, one-third or more of schools in Portugal (33%), Austria (35%), and Ireland (39%) had no form of school evaluation in the previous five years. On average across TALIS countries, 22% of teachers did not receive any feedback or appraisal in the previous five years. Large proportions of teachers are missing out on the benefits of appraisal and feedback in Italy (55%), and Spain (46%). Importantly, teachers working in schools that had no school evaluations over the previous five years were less likely to receive appraisal or feedback.

Countries are ranked in descending order of the percentage of teachers who have received no appraisal or feedback in the previous five years.

Source: OECD. Table D5.1 and *TALIS Database*.

StatLink http://dx.doi.org/10.1787/665055402267

Other highlights of this indicator

- Appraisal and feedback have a strong positive influence on teachers. Teachers report that receiving appraisal and feedback increases their job satisfaction, leads to changes in their teaching practices, and significantly increases their development as teachers.
- Most teachers work in schools that they feel offer no rewards or recognition for their efforts. Three-quarters of responding teachers reported they would receive no rewards or recognition for increasing the quality of their work. A similar proportion reported they would receive no recognition for being more innovative in their teaching. This says little of a number of countries' efforts to promote schools as learning organisations that foster continual improvement.
- Most teachers work in schools that do not address the issue of teachers that underperform. Three-quarters of responding teachers reported that their school principal does not take steps to alter the monetary rewards of a persistently underperforming teacher. In addition, three-quarters of teachers reported that, in their schools, teachers would not be dismissed because of sustained poor performance.

TALIS

TALIS is the new OECD Teaching and Learning International Survey. It is the first international survey to focus on the learning environment and the working conditions of teachers in schools and it aims to fill important information gaps in the international comparisons of education systems. TALIS surveyed teachers of lower secondary education and the principals of the schools in which they work across 23 countries*, *i.e.* among OECD countries, Australia, Austria, Belgium (Flemish Community), Denmark, Hungary, Iceland, Ireland, Italy, Korea, Mexico, Norway, Poland, Portugal, the Slovak Republic, Spain and Turkey, and among partner countries, Brazil, Bulgaria, Estonia, Lithuania, Malaysia, Malta and Slovenia. Within participating countries, schools (as well as teachers within schools) were randomly selected to take part in TALIS. Countries participating in TALIS chose to focus the survey on the following key aspects of the learning environment, which can influence the quality of teaching and learning in schools: teacher professional development; teaching practices, beliefs and attitudes, teacher appraisal and feedback, and school leadership.

For more information see: *www.oecd.org/edu/TALIS*

* Because the sampling standards were not achieved in the Netherlands, their data are not shown in the international comparisons from TALIS.

Policy context

The role of school evaluation has changed in a number of countries in recent years. Historically, it focused on monitoring schools to ensure adherence to procedures and policies (OECD, 2008c). The focus in a number of countries has now shifted to aspects of school accountability and school improvement (OECD 2007e). An additional factor driving the development of the framework for evaluating education in schools, and of school evaluation in particular, is the recent increase in school autonomy in a number of educational systems as shown in *Education at a Glance 2008*. A lessening of centralised control can lead to an increase in monitoring and evaluation to ensure adherence to common standards (Caldwell, 2002). Variation in practice may need to be evaluated not only to ensure a positive impact on students and adherence to various policy and administrative requirements, but also to learn more about effective practices for school improvement. This is particularly important in view of the greater variation in outcomes and achievement among schools in some education systems than in others (see *Education at a Glance 2008* and OECD [2007a]).

School evaluation with a view to school improvement may focus on providing useful information for making and monitoring improvements and can support school principals and teachers (Van de Grift and Houtveen, 2006). Appraisal of teachers and subsequent feedback can also help stakeholders to improve schools through more informed decision making (OECD, 2005c). Such improvement efforts can be driven by objectives that consider schools as learning organisations which use evaluation to analyse the relationships between inputs, processes and, to some extent, outputs in order to develop practices that build on identified strengths and address weaknesses that can facilitate improvement efforts (Caldwell and Spinks, 1998).

A focus on a specific aspect of evaluation, such as teacher appraisal and feedback, may have a flow-on effect on the school and its practices, as teachers are the main actors in achieving school improvement and better student performance (O'Day, 2002). However, for evaluations to be effective their objectives should be aligned with the objectives and incentives of those who are evaluated (Lazear, 2000). To the extent that evaluations of organisations and appraisals of employees create incentives, the evaluations and appraisals need to be aligned so that employees have the incentive to focus their efforts on factors important to the organisation (OECD, 2008c). The extent of this effect can depend on the focus in the school evaluation and the potential impact upon schools (Odden & Busch, 1998). It may also affect the extent to which teacher appraisal and feedback is emphasised within schools (Senge, 2000).

Evidence and explanations

Frequency of school evaluation

The frequency of school evaluations provides an initial indication of both the extent of the evaluation of education in schools and the place of school evaluations in the framework of evaluation. Distinctions between external and internal evaluations identify the actors involved and the interaction between schools and a centralised decision-making body. As Table D5.1 shows, countries differ considerably in this respect. One-third or more of teachers worked in schools whose school principal reported no internal or external school evaluations in the previous five years in Austria (35%), Ireland (39%) and Portugal (33%). This also was the case for around one-quarter of teachers in Denmark and Spain and around one-fifth in Italy. Clearly, these countries have relatively little in the way of a framework for school evaluation. However,

in Ireland and Italy policies are being implemented to increase the frequency and reach of school evaluations but at the time of the survey these policies were not yet fully in place.

In contrast, in a number of countries teachers worked in schools with at least one evaluation over the previous five years. In 14 TALIS countries (Australia, Brazil, Bulgaria, Hungary, Italy, Korea, Lithuania, Malaysia, Malta, Mexico, Poland, the Slovak Republic, Slovenia and Turkey), at least half of teachers worked in schools whose school principal reported at least an annual school evaluation (either an external evaluation or a school self-evaluation). Over three-quarters of teachers in Lithuania, Malaysia and the Slovak Republic worked in schools whose school principal reported having annual or even more frequent evaluations (Table D5.1). This represents a stark contrast with countries with no school evaluations in the previous five years.

School evaluations conducted by an external inspectorate or equivalent agency were slightly less frequent than school self-evaluations. Eighty percent of teachers worked in schools whose school principal reported a school self-evaluation in the previous five years compared to some 70% who worked in schools whose school principal reported an external inspection (Table D5.1). This indicates that in some education systems, school evaluations are more internally driven. As an example, almost half of teachers in Malta worked in schools whose school principal reported an external evaluation but 90% worked in schools where the school principal reported having a school self-evaluation in the previous five years. Denmark, Italy, Lithuania and Slovenia also had fewer external evaluations than self-evaluations.

An important finding is that in a number of countries a substantial proportion of schools only conducted self-evaluations. They include Austria (25% of teachers worked in schools that conducted a self-evaluation but no external evaluation during the previous five years), Denmark (24%), Italy (38%), Lithuania (35%), Malta (44%), Norway (19%), the Slovak Republic (19%) and Slovenia (23%).

Feedback and appraisal for teachers and their outcomes

As shown in Chart D5.1, most teachers received some form of appraisal or feedback. To this end, seven specific outcomes that reward and/or affect teachers and their work were identified as possibly stemming from teacher appraisal and feedback: *(i)* a change in salary; *(ii)* a financial bonus or another kind of monetary reward; *(iii)* opportunities for professional development; *(iv)* a change in the likelihood of career advancement; *(v)* public recognition from the school principal and other colleagues; *(vi)* changes in work responsibilities that makes teachers' jobs more attractive; and *(vii)* a role in school development initiatives. These are presented in Table D5.2 which shows the percentage of teachers reporting changes in these outcomes following appraisal or feedback. In interpreting the data it should be kept in mind that the percentages only concern teachers who received appraisal or feedback about their work in the current school.

The data suggest that teachers' appraisal and feedback involves relatively small material incentives. In most TALIS countries, appraisal and feedback entail little financial reward for teachers and are not linked to their career advancement. Across TALIS countries, just 9% of teachers reported that appraisal or feedback had a moderate or large impact upon their salary and 11% reported that it had a moderate or large impact on a financial bonus or another kind of monetary reward. However, there are stronger links to teacher salaries in a few countries. Between one-fifth and

one-third of teachers indicate that appraisal and feedback led to a moderate to a large change in their salary in Bulgaria (26%), Malaysia (33%), and the Slovak Republic (20%). Similarly, teachers in Bulgaria, Estonia, Hungary, Lithuania, Malaysia, Poland, the Slovak Republic and Slovenia were more likely to report a link between appraisal and feedback and a bonus or other monetary reward (Table D5.2).

A common result of teachers' appraisal and feedback is some form of public recognition either from the school principal or from teachers' colleagues. Thirty-six percent of teachers said that their appraisal and feedback had led to a moderate or large change in the recognition they received from their school principal and/or colleagues within the school (Table D5.2). Public recognition is a clear non-monetary incentive which highlights the role of teacher appraisal and feedback in rewarding quality teaching. While recognition was more common than monetary incentives, it was still not very frequent. Clearly, in many countries there are weak links between appraisal and feedback and both monetary incentives and public recognition and other non-monetary implications.

This weak link extends also to opportunities for professional development. Just under one-quarter of teachers reported that appraisal and feedback led to a moderate or a large change in their opportunities for professional development. The largest proportions were in Bulgaria (42%), Estonia (36%) Lithuania (42%), Malaysia (51%), Poland (38%) and Slovenia (36%). Slightly more teachers (27%) reported an impact on changes in their work responsibilities and 30% on their role in school development initiatives.

Teacher appraisal and feedback mechanisms can assume a developmental role as well as reward performance. A greater percentage of teachers report a moderate or strong link between their appraisal and feedback and changes in work responsibilities that make their jobs more attractive in Brazil, Lithuania, Malaysia and Mexico, where teachers' remuneration is also more likely to be linked to appraisal and feedback. Few teachers report a strong link in Austria, Belgium (Fl.), Hungary, Ireland, Malta and Norway where teacher appraisal and feedback appears to be underdeveloped. Importantly, there were also low rates of school evaluation in Austria and Ireland.

Impact of appraisal and feedback on job satisfaction and effects on teaching

The impact of appraisal and feedback is complementary to the discussion above but here the focus is on teachers' job satisfaction, effect on their teaching, and on broader school development. As Table D5.3 shows, on average across TALIS countries teachers who received appraisal and feedback had a positive view of the process and its connection to their work and their careers. Overall, most teachers considered the appraisal and feedback they received to be a fair assessment of their work and to have a positive impact upon their job satisfaction (Table D5.4). This is an important finding given the negative reactions that may be associated with the introduction of a teacher appraisal system. TALIS provides, for the first time, international data from representative samples of countries that show that systems of appraisal and feedback can have a positive impact on teachers.

Feelings of insecurity, fear and reduced appreciation of work can occur when a new or enhanced appraisal system is introduced in an organisation (Saunders, 2000). An emphasis on accountability can be assumed in some instances to imply strict and potentially punitive measures and thus

have a negative impact upon teachers, their appreciation of their jobs and work as teachers (O'Day, 2002). However the results presented here do not bear out these assumptions, as the majority of teachers in these varied systems consider the appraisal and feedback they receive to be beneficial to their work as teachers, to be fair, and to increase job satisfaction. In fact, given the benefits of systems of appraisal and feedback, the greatest concern may be in countries that lack such systems. Moreover, it appears that very few systems fully exploit the potential positive benefits of systems of teacher appraisal and feedback.

Teachers' perceptions of fairness of appraisal and feedback

Teachers' perceptions of the appraisal and feedback they receive are likely to be shaped by the degree to which they consider it fair and a just assessment of their work. It may be assumed that teachers who do not consider their appraisal and feedback a fair assessment of their work would also have a negative view of other aspects of its impact and role within their school. Impressions of fairness are also linked to indicators of the extent to which the outcomes and incentives of an appraisal and feedback system are properly aligned with teachers' work, what they consider to be important in their teaching, and the school's organisational objectives. For example, if teachers are appraised and receive feedback on a particularly narrow set of criteria or on a particular outcome measure which they feel does not fully or fairly reflect their work, a measure of the fairness of the system should highlight this problem.

Table D5.3 shows that 63% of teachers agreed and 20% strongly agreed that the appraisal and feedback they received was a fair assessment of their work. However, there were notable exceptions in some countries. A substantial proportion of teachers either strongly disagreed or disagreed that the appraisal and feedback was fair in Korea (9% strongly disagreed and 38% disagreed), and Turkey (12% and 23%, respectively). As detailed in Table D5.4, very few teachers reported a negative impact upon their job security. In fact, 34% considered that it led to either a small or large increase in job security. In addition, over half reported either a small or large increase in their job satisfaction. Appraisal and feedback may therefore be considered to have a positive impact on aspects of teachers' careers.

This generally positive impact is important given that 13% of teachers reported receiving no appraisal or feedback in their current school. These teachers may be missing out on the benefits of appraisal and feedback both for themselves and for their schools, and on commensurate developmental opportunities. As discussed in the highlights to this indicator, a number of TALIS countries have a large proportion of teachers who received no appraisal or feedback (Chart D5.1). This was apparent in Ireland (26% of teachers report not receiving appraisal or feedback from any source in their school), Portugal (26%) and particularly in Italy (55%) and Spain (46% of teachers report not receiving appraisal or feedback from any source in their school).

Of those teachers who received appraisal and feedback, 79% on average considered that it was helpful for their development as a teacher (Table D5.3). In Italy, and Portugal the percentage who considered it helpful was above the TALIS average. In these countries with a less well-developed system of teacher appraisal and feedback, the benefits for those teachers it does reach seem to be considerable. This appears to be a clear signal to policy makers that appraisal and feedback can improve the working lives of teachers.

Teacher appraisal and feedback and school development

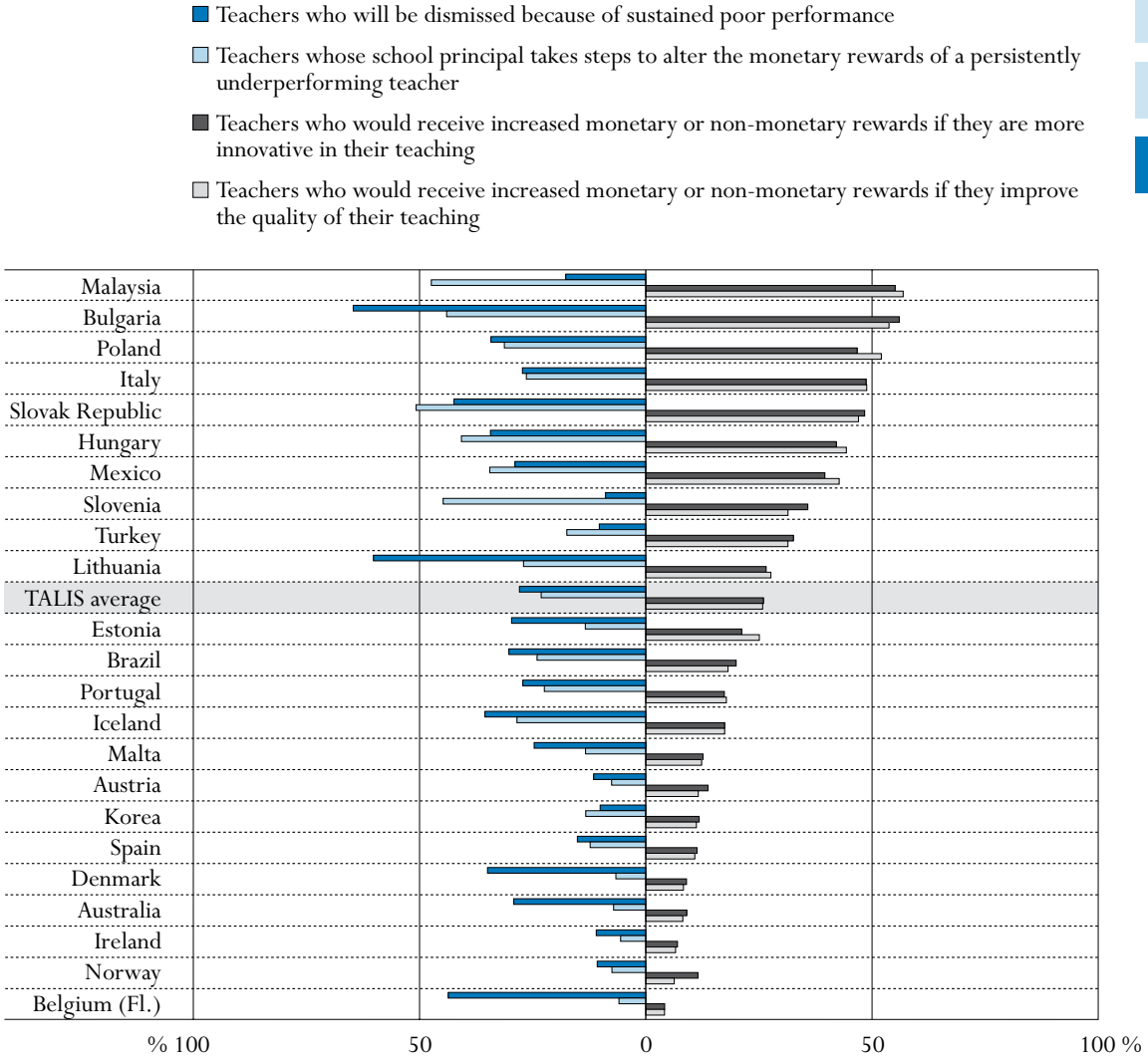
Table D5.5 presents teachers' views on the interaction of their school's system of appraisal and feedback and various issues of school development, incentives and career structures within schools, and the recognition accorded to teachers for their work. It provides a picture of the careers and working lives of teachers for those who believe in providing incentives and recognising achievement, for those wishing to promote effective learning networks within schools, and for the broad objectives of continually increasing school effectiveness. Overall, teachers surveyed in TALIS report that systems of appraisal and feedback generally did not recognise teachers' efforts and successes, reward effective teachers and effective teaching practices, or provide incentives to teachers. Teachers in TALIS countries generally did not feel that they receive recognition for their work and reported that if they increased their efforts and effectiveness they would not receive more recognition. Most teachers reported that successful and effective teaching is not rewarded and that more recognition does not go to the teachers who most deserve it.

Three-quarters of teachers reported working in schools that do not give greater rewards (either monetary or non-monetary) to the most effective teachers (Table D5.5). Such a result may not be unexpected for purely monetary returns. However, public recognition is an important aspect of the TALIS analysis and is covered in the questionnaires completed by teachers and school principals. The lack of this broader recognition shows that teachers' workplaces offer little incentive for more effective teaching. This was the situation for the great majority of teachers in a number of countries and for over 90% in Australia, Belgium (Fl.), Ireland and Spain. This finding is reinforced by the fact that three quarters of teachers report that they would receive no monetary or non-monetary reward if they improve the quality of their teaching or are more innovative in their teaching.[1] This is particularly important given that efforts to improve schools rely heavily on improving the quality of teaching. These figures indicate that efforts to treat schools as learning organisations which continually refine their teaching methods to improve student learning have not been successful in providing commensurate recognition or incentives for teachers.

Given the lack of recognition for teachers and their work, it is important to consider their beliefs about colleagues who are under-performing within schools. If teachers who are more effective or more innovative are not recognised, what is the situation for teachers who underperform? Three-quarters of teachers in TALIS countries reported that their school principal does not take steps to alter the monetary rewards of a persistently underperforming teacher (Table D5.5). This is not surprising in light of the weak link between appraisal and feedback and monetary outcomes in most countries. Moreover, not all education systems grant school principals the authority to make such changes. In most countries teachers reported that sustained poor performance would not lead to dismissal. This was particularly true in Austria (12% strongly agreed or agreed), Ireland (11%), Korea (10%), Norway (11%), Slovenia (9%), Spain (15%) and Turkey (10%) (Chart D5.2). However this is not true for all countries: in some countries a substantial proportion of teachers agreed or strongly agreed with the statement that their school principal does take steps to alter the monetary rewards of a persistently underperforming teacher, particularly in Bulgaria (44%), Hungary (41%), Malaysia (47%), Mexico (35%), Poland (31%), the Slovak Republic (51%) and Slovenia (45%).

1. It should be noted that TALIS did not seek to define innovative or effective teaching for respondents. Therefore, teachers' reports in these areas represent their opinions of what is and is not innovative and effective teaching and teachers.

Chart D5.2. Perception of teachers of the appraisal and feedback and its impact in their school (2007-08)



Countries are ranked in descending order of the percentage of teachers reporting to receive increased monetary or non-monetary rewards for an improvement in the quality of their teaching.

Source: OECD. Table D5.5 and *TALIS Database*. See Annex 3 for notes (*www.oecd.org/edu/eag2009*).

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Given the lack of action against underperforming teachers, it is important to note that most teachers across TALIS countries thought that in their school sustained or persistent underperformance would not be tolerated by the rest of the staff. However, in Australia, Austria, Denmark, Ireland, Korea, Malaysia, Malta and Norway over 40% of teachers agreed or strongly agreed that poor performance would be tolerated. It is clear therefore that a lack of recognition for effectiveness is linked in many schools to an inability or unwillingness to take action for underperforming teachers.

A key question regarding underperformance is how it is measured and how information is obtained to determine a teacher's level of performance. It is difficult to take steps when decision makers cannot obtain or properly measure information about performance. Across TALIS countries, 55% of teachers agree that the school principal has effective methods to determine whether teachers perform well or badly. However, this was variable across countries, and more than 60% of teachers disagreed with this statement in Denmark, Iceland, Ireland, Korea, Norway and Spain (Table D5.5).

Just under half of teachers agreed with the statement that teachers' work is reviewed merely to fulfil an administrative requirement. A similar percentage of teachers reported that the review of teachers' work has little impact on how teachers act in the classroom. Although nearly two-thirds of teachers reported that a development or training plan is used in their schools to improve their work as a teacher, this is a positive sign only if such plans have a positive effect (Table D5.5).

Definitions and methodologies

Data are from the first OECD-TALIS Teaching and Learning International Survey and refer to the school year 2007/08. TALIS collected data from school principals and teachers. The data from school principals includes the frequency of school evaluations, including school self-evaluations, and the importance placed upon various areas. Data were also obtained on the impacts and outcomes of school evaluations, with a focus on the extent to which these outcomes affect the school principal and the school's teachers. TALIS collected data from teachers on the focus and outcomes of teacher appraisal and feedback and professional development. This information makes it possible to see the extent to which the focus of school evaluations is reflected in teacher appraisal and feedback.

The focus of TALIS was lower secondary education as defined by level 2 of the International Standard Classification for Education (ISCED).

In gathering data in TALIS, the following definitions were applied:

School evaluation

School evaluation refers to an evaluation of the whole school rather than of individual subjects or departments.

Teacher appraisal

Teacher appraisal and feedback occurs when a teacher's work is reviewed by either the school principal, an external inspector or by the teacher's colleagues. This appraisal can be conducted in ways ranging from a more formal, objective approach (*e.g.* as part of a formal performance management system, involving set procedures and criteria) to a more informal, more subjective approach (*e.g.* informal discussions with the teacher).

Questionnaire items

The exact questions and response options in the TALIS survey for this indicator can be found in Annex 3 at *www.oecd.org/edu/eag2009*.

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Table D5.1.

Frequency and type of school evaluations (2007-08)

Percentage of teachers of lower secondary education working in schools where school evaluations were conducted with the following frequency over the last five years

TALIS countries	Frequency of school self-evaluations over the last five years					Frequency of external evaluations over the last five years					No evaluation from any source over the last five years
	Never	Once	2-4 times	Once per year	More than once per year	Never	Once	2-4 times	Once per year	More than once per year	
	% (S.E.)	% (S.E.)	% (S.E.)	% (S.E.)	% (S.E.)	% (S.E.)	% (S.E.)	% (S.E.)	% (S.E.)	% (S.E.)	% (S.E.)
Australia	6.8 (2.87)	25.3 (3.89)	14.1 (3.17)	50.0 (4.16)	3.7 (1.73)	21.2 (3.43)	36.2 (4.06)	29.7 (4.03)	10.7 (2.28)	2.2 (1.31)	5.0 (2.30)
Austria	41.7 (3.59)	28.2 (2.94)	17.7 (2.91)	11.3 (2.11)	1.1 (0.63)	58.3 (3.37)	22.9 (3.09)	9.0 (1.89)	6.4 (1.78)	3.4 (1.22)	35.2 (3.49)
Belgium (Fl.)	22.0 (3.91)	33.4 (4.04)	30.9 (4.93)	12.9 (2.59)	0.7 (0.71)	10.4 (2.82)	54.6 (4.38)	32.7 (3.71)	1.9 (0.96)	0.4 (0.41)	5.8 (2.19)
Brazil	24.4 (2.61)	10.2 (1.67)	16.5 (2.23)	33.2 (3.29)	15.7 (2.70)	24.3 (2.64)	14.2 (2.56)	21.3 (2.59)	24.9 (2.99)	15.3 (2.50)	18.9 (2.42)
Bulgaria	22.0 (3.65)	12.6 (3.16)	11.4 (3.30)	34.5 (6.15)	19.5 (3.98)	29.4 (4.50)	30.4 (3.86)	15.9 (3.49)	14.0 (3.17)	10.4 (5.71)	18.8 (3.43)
Denmark	32.4 (4.12)	15.1 (4.01)	19.8 (3.92)	25.4 (3.84)	7.3 (2.60)	53.0 (4.31)	22.4 (4.36)	10.9 (2.97)	11.5 (2.83)	2.2 (1.62)	25.4 (4.03)
Estonia	23.9 (3.50)	26.7 (3.50)	19.5 (3.41)	28.4 (3.62)	1.6 (1.13)	27.5 (3.94)	47.8 (4.22)	18.4 (3.43)	4.4 (1.72)	1.8 (0.84)	11.8 (2.76)
Hungary	4.7 (1.92)	11.7 (2.46)	23.1 (3.22)	41.2 (6.51)	19.3 (6.36)	12.4 (2.47)	20.9 (2.81)	38.2 (6.36)	23.2 (6.93)	5.2 (1.47)	1.2 (0.67)
Iceland	11.3 (0.14)	30.9 (0.15)	26.3 (0.17)	28.9 (0.12)	2.6 (0.12)	18.0 (0.11)	56.3 (0.20)	22.5 (0.18)	0.7 (0.00)	2.5 (0.08)	5.0 (0.09)
Ireland	56.5 (5.06)	25.2 (4.52)	7.6 (2.52)	8.2 (2.87)	2.5 (1.73)	56.9 (5.16)	36.5 (5.05)	5.2 (2.11)	1.4 (1.41)	0.0 (0.00)	39.1 (4.91)
Italy	21.2 (2.84)	10.2 (1.81)	19.7 (2.63)	43.9 (3.20)	5.1 (1.50)	60.7 (3.15)	11.3 (2.16)	14.6 (2.37)	12.3 (2.29)	1.1 (0.66)	19.8 (2.76)
Korea	6.5 (2.26)	10.9 (2.70)	26.7 (3.41)	26.8 (3.80)	29.2 (3.32)	3.0 (1.53)	26.3 (3.65)	41.0 (4.22)	10.6 (2.27)	19.1 (3.20)	0.9 (0.88)
Lithuania	3.7 (1.40)	7.9 (2.03)	9.4 (2.53)	67.8 (3.54)	11.2 (2.42)	37.1 (3.50)	25.1 (3.06)	20.6 (3.12)	8.4 (1.66)	8.9 (2.59)	3.4 (1.35)
Malaysia	2.1 (0.98)	2.2 (0.96)	19.9 (2.70)	50.7 (3.36)	25.1 (3.08)	7.8 (2.00)	11.4 (2.27)	25.3 (3.12)	22.9 (3.17)	32.7 (3.51)	2.1 (0.98)
Malta	10.1 (0.13)	10.2 (0.09)	30.5 (0.15)	48.6 (0.20)	0.6 (0.00)	53.9 (0.24)	38.8 (0.25)	6.3 (0.08)	1.0 (0.00)	0.0 (0.00)	7.4 (0.13)
Mexico	20.4 (4.00)	9.5 (2.47)	17.1 (2.86)	32.4 (3.93)	20.6 (3.55)	21.1 (4.05)	11.0 (2.54)	20.0 (3.41)	20.0 (3.20)	27.9 (4.09)	17.1 (3.82)
Norway	25.5 (4.08)	14.3 (3.35)	18.7 (3.32)	33.5 (4.13)	7.9 (2.36)	35.6 (4.44)	34.9 (4.49)	21.2 (3.78)	5.9 (2.17)	2.5 (1.44)	17.2 (3.64)
Poland	10.4 (2.56)	13.8 (2.95)	24.2 (3.92)	34.2 (3.80)	17.5 (2.97)	13.6 (3.07)	51.5 (4.14)	20.1 (3.53)	12.8 (2.83)	1.9 (1.33)	6.5 (2.39)
Portugal	47.9 (3.97)	19.3 (3.56)	13.3 (2.95)	13.0 (3.10)	6.4 (2.14)	49.1 (4.34)	29.9 (4.10)	18.2 (3.11)	2.1 (1.18)	0.6 (0.65)	32.8 (3.32)
Slovak Republic	1.6 (0.79)	5.4 (2.00)	8.3 (2.36)	70.5 (3.34)	14.3 (2.88)	18.1 (3.73)	56.0 (4.28)	15.7 (3.53)	6.8 (1.78)	3.3 (1.45)	1.6 (0.79)
Slovenia	19.9 (2.97)	15.9 (2.91)	12.1 (2.59)	45.2 (3.84)	6.9 (1.86)	40.1 (3.89)	34.2 (3.78)	16.0 (2.95)	7.8 (2.20)	1.9 (1.11)	15.5 (2.81)
Spain	31.1 (3.31)	18.1 (2.74)	13.7 (2.39)	32.4 (3.72)	4.7 (1.80)	38.5 (3.67)	27.2 (3.79)	19.7 (3.27)	13.8 (2.90)	0.8 (0.76)	24.5 (3.14)
Turkey	18.0 (4.43)	16.5 (4.73)	20.9 (3.74)	30.7 (4.58)	13.9 (2.90)	8.5 (3.53)	8.0 (3.82)	28.5 (3.88)	37.6 (5.16)	17.4 (4.50)	1.8 (1.07)
TALIS average	*20.2 (0.65)*	*16.2 (0.62)*	*18.3 (0.63)*	*34.9 (0.78)*	*10.3 (0.55)*	*30.4 (0.72)*	*30.8 (0.74)*	*20.5 (0.70)*	*11.4 (0.58)*	*7.0 (0.48)*	*13.8 (0.56)*

Source: OECD, *TALIS Database*.

StatLink http://dx.doi.org/10.1787/665055402267

Table D5.2.

Outcomes of teacher appraisal and feedback (2007-08)

Percentage of teachers of lower secondary education who reported that the appraisal and/or feedback they received led to a moderate or large change in the following aspects of their work and careers

TALIS countries	A change in salary		A financial bonus or another kind of monetary reward		A change in the likelihood of career advancement		Public recognition from the principal and/or their colleagues		Opportunities for professional development activities		Changes in work responsibilities that make the job more attractive		A role in school development initiatives (*e.g.* curriculum development group)	
	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)
Australia	5.6	(0.53)	1.6	(0.26)	16.9	(0.80)	24.1	(0.99)	16.7	(1.03)	17.4	(0.96)	24.1	(1.03)
Austria	1.1	(0.18)	1.7	(0.20)	4.7	(0.39)	27.1	(0.88)	8.0	(0.51)	14.7	(0.63)	17.2	(0.70)
Belgium (Fl.)	0.4	(0.11)	0.1	(0.06)	3.7	(0.37)	20.7	(0.92)	7.1	(0.57)	11.9	(0.74)	10.1	(0.86)
Brazil	8.2	(0.77)	5.5	(0.55)	25.6	(1.16)	47.8	(1.22)	27.8	(1.18)	47.7	(1.42)	41.6	(1.43)
Bulgaria	26.2	(1.70)	24.2	(2.12)	11.6	(0.93)	64.9	(1.56)	42.4	(2.85)	28.2	(1.58)	49.5	(1.86)
Denmark	2.2	(0.50)	2.7	(0.53)	4.7	(1.13)	25.3	(1.49)	25.6	(1.43)	19.0	(1.61)	16.3	(1.23)
Estonia	14.3	(0.72)	19.8	(1.13)	10.5	(0.63)	39.6	(1.23)	35.6	(1.30)	21.7	(0.82)	31.3	(0.94)
Hungary	9.4	(0.92)	25.1	(1.62)	10.7	(0.76)	40.2	(1.42)	22.8	(1.05)	12.3	(0.81)	28.7	(1.42)
Iceland	7.5	(0.76)	9.3	(0.98)	8.6	(0.93)	18.3	(1.44)	20.5	(1.28)	18.1	(1.37)	19.2	(1.29)
Ireland	3.5	(0.44)	1.4	(0.40)	13.3	(1.09)	24.8	(1.10)	13.4	(1.00)	16.0	(1.11)	23.2	(1.29)
Italy	2.0	(0.35)	4.0	(0.47)	4.9	(0.53)	46.4	(1.40)	19.2	(1.30)	27.1	(1.34)	38.3	(1.51)
Korea	5.2	(0.49)	8.3	(0.56)	12.7	(0.78)	31.0	(1.19)	17.1	(0.91)	24.1	(0.91)	24.9	(1.02)
Lithuania	17.3	(0.94)	22.0	(1.31)	14.3	(0.89)	55.4	(1.11)	42.4	(1.13)	39.9	(1.06)	42.8	(1.20)
Malaysia	33.0	(1.36)	29.0	(1.30)	58.2	(1.39)	58.6	(1.33)	50.8	(1.39)	76.4	(0.92)	64.1	(1.22)
Malta	1.7	(0.46)	1.2	(0.36)	8.2	(0.89)	19.3	(1.47)	7.8	(1.07)	15.1	(1.40)	16.7	(1.29)
Mexico	10.6	(0.72)	7.3	(0.60)	28.6	(1.25)	33.4	(1.30)	27.2	(1.07)	55.9	(1.35)	34.4	(1.42)
Norway	7.0	(0.78)	3.0	(0.41)	6.9	(0.61)	25.6	(1.09)	21.3	(1.00)	14.5	(0.79)	22.4	(0.98)
Poland	14.5	(0.88)	26.5	(1.19)	39.2	(1.17)	55.7	(1.22)	38.2	(1.19)	24.6	(1.13)	42.1	(1.21)
Portugal	1.7	(0.29)	0.6	(0.14)	6.2	(0.66)	26.3	(1.11)	11.3	(0.82)	25.3	(1.26)	25.3	(1.10)
Slovak Republic	19.7	(1.17)	37.3	(1.50)	20.8	(1.05)	40.7	(1.47)	28.7	(1.20)	30.0	(1.00)	35.9	(1.20)
Slovenia	14.2	(0.78)	19.4	(1.12)	39.4	(1.16)	43.3	(1.29)	36.2	(1.26)	24.5	(1.04)	28.7	(1.01)
Spain	1.8	(0.34)	1.6	(0.36)	8.6	(0.76)	25.1	(1.27)	13.2	(0.94)	16.9	(1.01)	20.7	(1.38)
Turkey	2.2	(0.49)	3.6	(0.85)	13.5	(1.15)	42.6	(2.13)	12.1	(1.35)	33.7	(1.69)	24.4	(1.87)
TALIS average	***9.1***	***(0.16)***	***11.1***	***(0.20)***	***16.2***	***(0.19)***	***36.4***	***(0.27)***	***23.7***	***(0.26)***	***26.7***	***(0.24)***	***29.6***	***(0.26)***

Note: Only includes those teachers that received appraisal or feedback.
Source: OECD, *TALIS Database*.
StatLink http://dx.doi.org/10.1787/665055402267

Table D5.3.

Teacher perceptions of the appraisal and/or feedback they received (2007-08)

Percentage of teachers of lower secondary education who reported the following about the appraisal and/or feedback they had received in their school

TALIS countries	Appraisal and/or feedback contained a judgment about the quality of the teacher's work		Appraisal and/or feedback contained suggestions for improving certain aspects of teacher's work		Appraisal and/or feedback was a fair assessment of their work as a teacher in this school								Appraisal and/or feedback was helpful in the development of their work as teachers in this school							
					Strongly disagree		Disagree		Agree		Strongly agree		Strongly disagree		Disagree		Agree		Strongly agree	
	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)
Australia	68.1	(1.36)	55.4	(1.28)	4.4	(0.51)	10.1	(0.73)	66.7	(1.05)	18.8	(0.94)	6.2	(0.60)	18.8	(1.15)	60.0	(1.17)	14.9	(0.87)
Austria	79.4	(0.67)	41.4	(1.09)	3.8	(0.30)	9.3	(0.57)	47.9	(0.83)	39.0	(0.84)	11.7	(0.64)	20.9	(0.81)	46.1	(1.00)	21.3	(0.80)
Belgium (Fl.)	77.3	(0.90)	64.9	(1.19)	3.0	(0.38)	9.0	(0.61)	57.2	(1.22)	30.8	(1.30)	4.2	(0.45)	13.4	(0.67)	60.4	(1.12)	22.0	(1.07)
Brazil	75.0	(1.23)	66.1	(1.65)	5.2	(0.72)	14.8	(0.96)	63.3	(1.20)	16.7	(0.91)	4.4	(0.64)	10.8	(0.76)	63.8	(1.44)	21.0	(1.18)
Bulgaria	92.5	(0.85)	70.2	(2.21)	2.1	(0.39)	6.9	(0.64)	64.8	(1.24)	26.2	(1.58)	2.4	(0.42)	6.8	(0.66)	67.4	(1.38)	23.4	(1.69)
Denmark	69.6	(1.70)	36.0	(1.67)	4.3	(0.65)	10.0	(0.97)	65.3	(1.55)	20.5	(1.25)	6.0	(0.71)	17.7	(0.95)	61.6	(1.30)	14.7	(1.08)
Estonia	83.4	(0.90)	58.2	(1.17)	2.5	(0.31)	10.9	(0.70)	68.9	(1.02)	17.7	(0.91)	6.8	(0.59)	22.9	(1.02)	59.1	(1.12)	11.2	(0.70)
Hungary	79.1	(1.33)	59.0	(2.01)	2.6	(0.43)	10.7	(0.72)	65.0	(1.15)	21.7	(1.14)	3.7	(0.48)	11.8	(0.95)	64.8	(1.06)	19.6	(1.47)
Iceland	63.7	(1.73)	29.9	(1.39)	6.8	(0.78)	12.6	(1.00)	58.9	(1.67)	21.7	(1.34)	9.3	(0.95)	19.2	(1.26)	59.3	(1.81)	12.2	(1.11)
Ireland	69.7	(1.40)	40.3	(1.72)	3.5	(0.49)	8.6	(0.73)	67.6	(1.33)	20.3	(1.13)	4.8	(0.56)	16.4	(0.89)	62.7	(1.29)	16.1	(1.10)
Italy	68.5	(1.42)	55.9	(1.67)	2.8	(0.40)	10.8	(0.84)	77.1	(1.02)	9.3	(0.80)	3.3	(0.41)	13.5	(1.02)	71.6	(1.43)	11.6	(0.96)
Korea	64.2	(1.12)	64.7	(0.99)	9.2	(0.61)	38.1	(1.03)	51.3	(1.10)	1.4	(0.29)	9.8	(0.64)	36.9	(1.00)	51.5	(1.15)	1.8	(0.27)
Lithuania	88.4	(0.82)	69.8	(1.19)	1.1	(0.27)	6.0	(0.48)	74.9	(0.81)	18.0	(0.91)	2.0	(0.31)	8.5	(0.52)	70.1	(0.95)	19.4	(0.93)
Malaysia	94.8	(0.46)	93.1	(0.53)	1.2	(0.17)	9.4	(0.65)	76.9	(0.97)	12.5	(0.89)	0.8	(0.13)	6.1	(0.49)	70.3	(1.11)	22.8	(1.17)
Malta	85.4	(1.34)	62.0	(1.63)	3.3	(0.67)	11.0	(1.24)	66.8	(1.72)	18.9	(1.32)	3.4	(0.75)	17.2	(1.53)	63.5	(1.81)	15.9	(1.29)
Mexico	72.8	(1.01)	77.5	(1.05)	6.2	(0.62)	13.6	(0.86)	54.9	(1.24)	25.4	(1.12)	5.3	(0.49)	9.2	(0.84)	52.6	(1.19)	32.9	(1.28)
Norway	61.8	(1.49)	28.2	(1.27)	6.0	(0.54)	10.0	(0.81)	46.7	(1.25)	37.4	(1.40)	9.9	(0.75)	15.1	(0.96)	54.3	(1.15)	20.7	(1.12)
Poland	88.8	(0.77)	59.1	(1.64)	2.0	(0.30)	4.4	(0.51)	62.3	(1.32)	31.3	(1.28)	2.2	(0.30)	8.9	(0.72)	68.0	(1.20)	20.9	(1.07)
Portugal	77.4	(1.03)	56.1	(1.45)	4.2	(0.54)	14.4	(0.92)	66.7	(1.15)	14.8	(0.85)	4.8	(0.58)	12.7	(0.77)	68.5	(1.22)	14.0	(1.01)
Slovak Republic	87.2	(1.01)	65.0	(1.34)	3.0	(0.40)	15.8	(0.85)	69.0	(1.28)	12.2	(0.97)	3.9	(0.48)	18.1	(1.17)	67.1	(1.26)	10.9	(0.86)
Slovenia	75.3	(0.96)	61.6	(1.30)	2.5	(0.36)	9.0	(0.59)	73.0	(1.03)	15.5	(0.91)	3.7	(0.45)	14.6	(0.79)	68.8	(1.09)	12.9	(0.92)
Spain	42.1	(1.46)	60.4	(1.40)	8.9	(0.92)	16.6	(1.07)	60.2	(1.35)	14.3	(0.96)	9.4	(0.84)	20.3	(1.24)	57.7	(1.46)	12.6	(0.96)
Turkey	53.8	(1.99)	58.7	(2.02)	12.3	(1.20)	23.2	(1.81)	50.9	(2.05)	13.6	(0.89)	10.1	(1.25)	25.4	(1.43)	51.7	(1.74)	12.8	(1.29)
TALIS average	*74.7*	*(0.26)*	*58.0*	*(0.31)*	*4.4*	*(0.12)*	*12.4*	*(0.18)*	*63.3*	*(0.27)*	*19.9*	*(0.22)*	*5.6*	*(0.13)*	*15.9*	*(0.20)*	*61.8*	*(0.27)*	*16.8*	*(0.23)*

Note: Only includes those teachers that received appraisal or feedback.
Source: OECD, *TALIS Database*.
StatLink http://dx.doi.org/10.1787/665055402267

Table D5.4.

Teacher perceptions of the personal impact of teacher appraisal and feedback (2007-08)

Percentage of teachers of lower secondary education who reported the following changes following the appraisal and/or feedback they received in their school

TALIS countries	Change in their job satisfaction										Change in their job security									
	A large decrease		A small decrease		No change		A small increase		A large increase		A large decrease		A small decrease		No change		A small increase		A large increase	
	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)
Australia	3.3	(0.43)	6.3	(0.58)	48.1	(1.31)	34.2	(1.11)	8.3	(0.67)	1.4	(0.32)	2.3	(0.38)	76.3	(1.03)	12.7	(0.76)	7.4	(0.71)
Austria	2.2	(0.26)	3.8	(0.35)	53.5	(0.90)	27.1	(0.84)	13.4	(0.65)	1.0	(0.16)	0.9	(0.15)	83.0	(0.80)	9.0	(0.61)	6.1	(0.41)
Belgium (Fl.)	2.5	(0.38)	4.7	(0.41)	51.4	(1.43)	29.9	(1.28)	11.5	(0.77)	1.0	(0.21)	1.5	(0.21)	68.3	(1.45)	15.9	(0.96)	13.3	(0.80)
Brazil	2.7	(0.48)	5.3	(0.57)	33.5	(1.43)	36.4	(1.15)	22.1	(1.25)	1.5	(0.38)	2.5	(0.29)	58.5	(1.50)	22.1	(1.14)	15.3	(0.94)
Bulgaria	3.7	(0.64)	4.0	(0.51)	34.8	(2.53)	41.7	(2.84)	15.8	(1.29)	1.1	(0.17)	2.2	(0.56)	37.3	(2.51)	40.7	(2.57)	18.6	(1.68)
Denmark	1.3	(0.31)	3.5	(0.47)	51.3	(1.52)	35.1	(1.38)	8.8	(0.93)	0.7	(0.25)	1.3	(0.30)	81.9	(1.41)	11.2	(1.41)	5.0	(0.81)
Estonia	3.1	(0.40)	6.3	(0.52)	37.8	(1.12)	45.0	(1.26)	7.9	(0.57)	3.2	(0.36)	7.3	(0.54)	42.5	(1.07)	36.9	(1.11)	10.2	(0.63)
Hungary	0.9	(0.21)	4.4	(0.43)	42.0	(1.08)	44.3	(1.41)	8.4	(0.95)	1.9	(0.28)	4.2	(0.50)	61.5	(1.42)	21.5	(0.82)	11.0	(1.18)
Iceland	2.8	(0.53)	3.6	(0.59)	39.7	(1.47)	29.8	(1.31)	24.1	(1.34)	1.6	(0.39)	2.4	(0.50)	51.1	(1.68)	21.1	(1.33)	23.7	(1.43)
Ireland	1.6	(0.35)	4.3	(0.56)	43.8	(1.64)	40.0	(1.64)	10.2	(0.81)	0.7	(0.21)	1.3	(0.27)	81.6	(1.17)	11.6	(0.91)	4.8	(0.53)
Italy	1.1	(0.23)	2.7	(0.62)	47.9	(1.38)	35.3	(1.21)	13.0	(1.05)	1.0	(0.23)	1.6	(0.34)	76.9	(1.21)	14.2	(0.99)	6.2	(0.65)
Korea	3.3	(0.46)	8.8	(0.60)	52.8	(1.09)	32.2	(1.10)	2.9	(0.31)	2.6	(0.39)	7.0	(0.53)	59.1	(1.17)	28.8	(1.05)	2.5	(0.32)
Lithuania	2.0	(0.25)	4.9	(0.43)	38.4	(0.99)	40.2	(0.98)	14.4	(0.93)	1.5	(0.19)	4.6	(0.45)	45.7	(1.03)	33.8	(0.92)	14.4	(0.86)
Malaysia	1.2	(0.21)	2.5	(0.28)	13.0	(0.84)	49.3	(1.16)	34.1	(1.16)	0.7	(0.16)	1.9	(0.45)	29.5	(1.88)	41.5	(1.47)	26.4	(1.06)
Malta	3.2	(0.65)	5.7	(0.92)	38.5	(1.77)	38.7	(1.81)	13.9	(1.35)	1.1	(0.42)	2.6	(0.60)	74.5	(1.61)	16.8	(1.38)	4.9	(0.80)
Mexico	1.8	(0.29)	4.7	(0.50)	16.4	(0.75)	42.5	(1.08)	34.6	(1.28)	1.6	(0.31)	3.3	(0.41)	26.1	(0.90)	32.4	(1.16)	36.6	(1.28)
Norway	1.2	(0.27)	2.8	(0.41)	46.3	(1.35)	43.6	(1.23)	6.1	(0.54)	0.8	(0.18)	1.8	(0.35)	69.8	(1.22)	19.2	(1.03)	8.4	(0.75)
Poland	1.9	(0.30)	3.0	(0.32)	36.2	(1.20)	36.1	(1.20)	22.8	(1.00)	1.6	(0.25)	2.3	(0.35)	55.2	(1.21)	23.2	(0.98)	17.8	(0.96)
Portugal	3.9	(0.48)	5.8	(0.56)	42.1	(1.27)	38.2	(1.16)	10.1	(0.76)	2.1	(0.35)	2.9	(0.42)	77.7	(1.26)	13.3	(1.00)	4.0	(0.49)
Slovak Republic	2.9	(0.48)	5.9	(0.59)	42.5	(1.14)	38.3	(1.23)	10.3	(0.77)	1.6	(0.33)	3.3	(0.37)	58.7	(1.22)	25.8	(1.24)	10.7	(0.77)
Slovenia	0.7	(0.15)	2.6	(0.29)	40.7	(1.08)	44.2	(1.10)	11.8	(0.64)	0.9	(0.21)	3.3	(0.41)	62.1	(1.02)	24.2	(0.93)	9.6	(0.61)
Spain	3.5	(0.43)	6.9	(0.64)	50.6	(1.44)	30.5	(1.28)	8.5	(0.69)	2.2	(0.39)	3.3	(0.47)	72.5	(1.16)	15.3	(1.05)	6.8	(0.72)
Turkey	6.9	(0.82)	8.2	(0.94)	47.0	(2.83)	24.9	(2.29)	12.9	(1.25)	2.6	(0.61)	4.4	(0.67)	75.1	(1.45)	10.3	(1.25)	7.6	(1.06)
TALIS average	*2.5*	*(0.09)*	*4.8*	*(0.11)*	*41.2*	*(0.30)*	*37.3*	*(0.30)*	*14.2*	*(0.20)*	*1.5*	*(0.06)*	*3.0*	*(0.09)*	*61.9*	*(0.29)*	*21.8*	*(0.25)*	*11.8*	*(0.19)*

Note: Only includes those teachers that received appraisal or feedback.
Source: OECD, *TALIS Database*.
StatLink http://dx.doi.org/10.1787/665055402267

Table D5.5.

Teacher appraisal and feedback and school development (2007-08)

Percentage of teachers of lower secondary education who agree or strongly agree with the following statements about aspects of appraisal and/or feedback in their school

TALIS countries	In this school, the school principal takes steps to alter the monetary rewards of a persistently underperforming teacher		In this school, the sustained poor performance of a teacher would be tolerated by the rest of the staff		In this school, teachers will be dismissed because of sustained poor performance		In this school, the principal uses effective methods to determine whether teachers are performing well or badly		In this school, a development or training plan is established for teachers to improve their work as teachers		In this school, the most effective teachers receive the greatest monetary or non-monetary rewards		In this school, if I improve the quality of my teaching I will receive increased monetary or non-monetary rewards		In this school, if I am more innovative in my teaching I will receive increased monetary or non-monetary rewards		In this school, the review of teacher's work is largely done to fulfil administrative requirements		In this school, the review of teacher's work has little impact upon the way teachers teach in the classroom	
	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)
Australia	7.1	(0.72)	42.8	(1.50)	29.2	(1.61)	48.7	(1.54)	54.5	(1.73)	9.2	(0.65)	8.2	(0.67)	9.0	(0.72)	63.4	(1.54)	61.4	(1.42)
Austria	7.6	(0.45)	40.8	(0.97)	11.5	(0.73)	46.2	(1.12)	21.2	(0.99)	10.9	(0.64)	11.6	(0.58)	13.8	(0.66)	44.5	(0.96)	58.9	(0.82)
Belgium (Fl.)	5.9	(0.51)	25.9	(1.13)	43.6	(1.63)	49.5	(1.53)	45.1	(1.54)	5.0	(0.44)	4.1	(0.34)	4.2	(0.37)	37.9	(1.48)	44.4	(1.35)
Brazil	24.0	(1.15)	30.4	(1.12)	30.2	(1.52)	57.7	(1.42)	70.9	(1.41)	13.2	(0.90)	18.2	(0.94)	20.0	(0.90)	45.6	(1.17)	35.9	(1.33)
Bulgaria	44.0	(2.30)	11.0	(1.17)	64.7	(2.41)	83.4	(1.32)	77.4	(2.25)	50.5	(2.83)	53.8	(1.70)	56.0	(1.74)	29.4	(1.85)	33.4	(1.31)
Denmark	6.6	(0.80)	40.7	(1.74)	35.0	(1.76)	37.8	(1.77)	54.4	(1.58)	15.0	(1.32)	8.3	(0.92)	9.0	(0.92)	48.1	(1.84)	60.8	(1.72)
Estonia	13.4	(0.91)	18.2	(0.93)	29.7	(1.16)	50.5	(1.66)	64.0	(1.40)	37.9	(1.59)	25.1	(1.17)	21.2	(1.12)	27.8	(1.18)	43.4	(1.09)
Hungary	40.7	(2.03)	32.6	(1.76)	34.3	(1.71)	61.4	(2.23)	71.9	(2.60)	45.0	(1.51)	44.3	(1.66)	42.1	(1.74)	24.4	(2.32)	40.2	(1.38)
Iceland	28.5	(1.40)	31.9	(1.34)	35.5	(1.32)	38.2	(1.49)	45.4	(1.46)	18.1	(1.08)	17.4	(1.00)	17.4	(1.03)	45.8	(1.41)	55.8	(1.37)
Ireland	5.6	(0.59)	58.9	(1.32)	10.9	(1.06)	39.1	(1.61)	51.9	(1.69)	7.5	(0.66)	6.6	(0.63)	7.0	(0.60)	52.8	(1.28)	60.2	(1.38)
Italy	26.4	(0.88)	28.0	(1.00)	27.3	(1.02)	68.1	(1.13)	71.9	(1.14)	42.6	(1.34)	48.8	(1.38)	48.7	(1.35)	32.8	(1.19)	40.9	(1.01)
Korea	13.3	(0.71)	47.3	(0.98)	10.1	(0.71)	31.9	(1.17)	31.3	(1.15)	10.0	(0.65)	11.2	(0.63)	11.8	(0.64)	60.5	(0.92)	51.9	(1.12)
Lithuania	27.0	(1.19)	20.2	(0.86)	60.2	(1.03)	70.3	(1.15)	90.7	(0.73)	36.3	(1.36)	27.7	(1.23)	26.6	(1.19)	48.9	(1.35)	54.9	(1.16)
Malaysia	47.4	(1.65)	52.8	(1.28)	17.7	(0.94)	75.0	(1.26)	89.4	(0.71)	53.1	(1.28)	56.9	(1.20)	55.1	(1.14)	50.6	(1.23)	34.7	(1.32)
Malta	13.3	(1.19)	41.9	(1.69)	24.7	(1.24)	56.0	(1.46)	60.4	(1.65)	10.2	(1.20)	12.3	(1.15)	12.6	(1.25)	58.3	(1.51)	51.8	(1.63)
Mexico	34.5	(1.31)	17.7	(1.09)	28.9	(1.30)	88.8	(0.80)	69.0	(1.43)	26.9	(1.20)	42.7	(1.28)	39.6	(1.40)	50.2	(1.67)	45.3	(1.34)
Norway	7.5	(0.59)	58.2	(1.15)	10.7	(0.88)	27.6	(1.33)	42.4	(1.41)	11.5	(0.81)	6.3	(0.70)	11.5	(0.87)	43.4	(1.24)	64.9	(1.09)
Poland	31.3	(1.37)	26.5	(1.17)	34.2	(1.22)	75.1	(1.34)	78.8	(1.24)	59.1	(1.52)	52.1	(1.35)	46.7	(1.25)	41.8	(1.53)	37.0	(1.45)
Portugal	22.4	(0.85)	20.0	(0.99)	27.2	(1.10)	57.2	(1.30)	49.3	(1.52)	11.0	(0.75)	17.8	(1.01)	17.4	(1.07)	47.9	(1.13)	55.3	(1.17)
Slovak Republic	50.8	(1.36)	34.9	(1.39)	42.4	(1.70)	64.3	(1.64)	73.6	(1.39)	48.6	(1.97)	47.0	(1.77)	48.4	(1.74)	33.8	(1.34)	54.5	(1.47)
Slovenia	44.8	(1.37)	35.0	(1.18)	8.9	(0.74)	64.3	(1.29)	67.4	(1.27)	42.2	(1.45)	31.4	(1.23)	35.8	(1.37)	37.5	(1.16)	55.5	(1.23)
Spain	12.3	(0.76)	36.3	(1.14)	15.1	(0.94)	35.5	(1.25)	53.6	(1.67)	7.3	(0.59)	10.8	(0.78)	11.3	(0.78)	48.7	(1.10)	62.2	(1.18)
Turkey	17.4	(1.48)	24.6	(1.17)	10.3	(1.09)	46.8	(1.66)	38.8	(2.21)	31.2	(2.08)	31.4	(2.24)	32.6	(2.08)	45.3	(2.04)	42.9	(2.40)
TALIS average	*23.1*	*(0.25)*	*33.8*	*(0.26)*	*27.9*	*(0.27)*	*55.4*	*(0.30)*	*59.7*	*(0.32)*	*26.2*	*(0.28)*	*25.8*	*(0.25)*	*26.0*	*(0.25)*	*44.3*	*(0.30)*	*49.8*	*(0.29)*

Source: OECD, *TALIS Database*.

StatLink http://dx.doi.org/10.1787/665055402267

HOW DO TEACHER PRACTICES, BELIEFS AND ATTITUDES MEASURE UP?

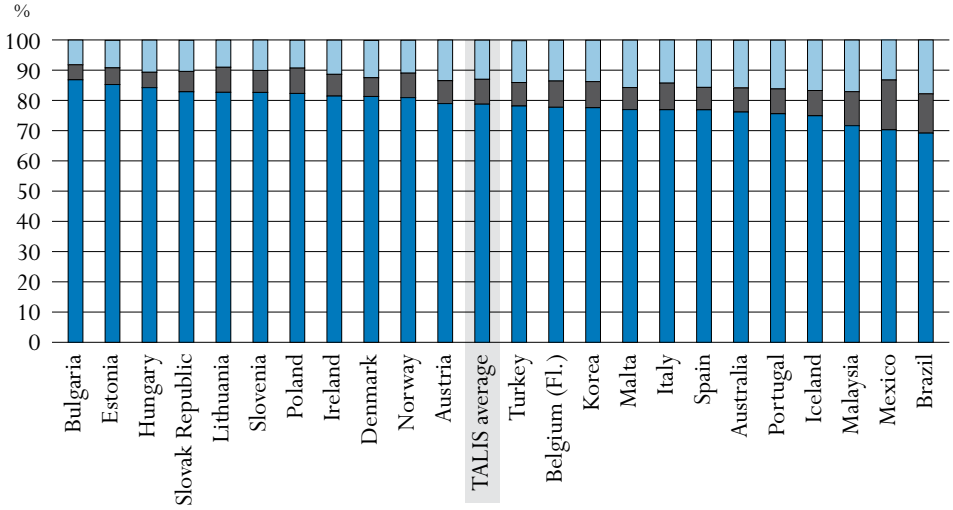
This indicator focuses on teacher practices, beliefs, and attitudes. They are closely linked to teachers' strategies for coping with challenges in their daily professional life and to their general well-being. They also shape the learning environment and influence student motivation and achievement. Furthermore they can be expected to mediate the effects of job-related policies – such as changes in curricula for teachers' initial education or professional development – on student learning. Data were collected from teachers in TALIS (Teaching and Learning International Survey) on teacher practices, beliefs and attitudes, and related issues such as classroom management practices, teacher professional activities, and job satisfaction. Analysis of this data has produced a number of important findings.

Key results

Chart D6.1. Distribution of time spent in the classroom during an average lesson (2007-08)

Keeping order in the classroom | Administrative tasks | Actual teaching and learning

Although on average teachers in most participating countries spend almost 80% of their lesson time on teaching and learning, teachers in most countries lose valuable lesson time through disruptions and administrative tasks. Bulgaria, Denmark, Estonia, Hungary, Ireland, Lithuania, Norway, Poland, the Slovak Republic and Slovenia make relatively effective use of lesson time. However in Brazil, Malaysia and Mexico a comparatively large proportion of time is spent on activities other than actual teaching and learning. For example, teachers in Mexico spend more time on administrative tasks on average than teachers in other countries (17%, compared to less than 9% in all other participating countries).



Countries are ranked in descending order of the percentage of actual teaching and learning time.
Source: OECD, *TALIS Database*.

StatLink http://dx.doi.org/10.1787/665115410485

Other highlights of this indicator

- Teachers are more inclined to regard students as active participants in the process of acquiring and constructing knowledge than to see the teacher's main role as the transmission of information and demonstration of "correct solutions". This is most true in Australia, Korea, north-western Europe and Scandinavia, and least true in Brazil, Malaysia and southern Europe where teachers fall between the two views.
- In the classroom, teachers in all countries put greater emphasis on ensuring that learning is well structured than on student-oriented activities which give them more autonomy. Both of these teaching practices are emphasised more than enhanced learning activities such as project work. This pattern is true in every country.
- Co-operation by teachers in all countries more commonly takes the form of exchanging and co-ordinating ideas and information than direct professional collaboration such as team teaching.
- The average levels of job satisfaction and of teachers' belief in their own effectiveness are fairly similar across countries, although teachers in Norway stand out as well above average in both respects. Most differences in these job-related attitudes entail differences among teachers within countries and within schools.

TALIS

TALIS is the new OECD Teaching and Learning International Survey. It is the first international survey to focus on the learning environment and the working conditions of teachers in schools and it aims to fill important information gaps in the international comparisons of education systems. TALIS surveyed teachers of lower secondary education and the principals of the schools in which they work across 23 countries*, *i.e.* among OECD countries, Australia, Austria, Belgium (Flemish Community), Denmark, Hungary, Iceland, Ireland, Italy, Korea, Mexico, Norway, Poland, Portugal, the Slovak Republic, Spain and Turkey, and among partner countries, Brazil, Bulgaria, Estonia, Lithuania, Malaysia, Malta and Slovenia. Within participating countries, schools (as well as teachers within schools) were randomly selected to take part in TALIS. Countries participating in TALIS chose to focus the survey on the following key aspects of the learning environment, which can influence the quality of teaching and learning in schools: teacher professional development; teaching practices, beliefs and attitudes, teacher appraisal and feedback, and school leadership.

For more information see: *www.oecd.org/edu/TALIS*

* Because the sampling standards were not achieved in the Netherlands, their data are not shown in the international comparisons from TALIS.

Policy context

It has been demonstrated that quality of instruction is fundamental to student learning. For instance, Wang, Haertel and Warburg (1997) showed that classroom management and classroom interactions had effects similar in size to students' cognitive competencies and their home environment. Likewise, when reviewing contemporary research on school effectiveness, Scheerens and Bosker (1997) concluded that characteristics of instruction have a greater effect on student achievement than those of the school environment. Characteristics of instruction include teacher beliefs and attitudes, practices and classroom environment. These in turn are related to the kinds of professional activities teachers engage in and their reported job satisfaction and self-efficacy.

However, there is no single, well-defined best way of teaching. Teachers' professional knowledge and practices may differ not only among countries but also among teachers within a country. It is important to know more about how teacher practices and beliefs interact, as the quality of the learning environment is the factor affecting student learning and outcomes that is most readily under the teacher's control. In addition, classroom discipline is a core element of instructional quality and an important part of the quality of the learning environment. In PISA, classroom discipline is positively related to the school's mean student achievement in many participating countries (Klieme and Rakoczy, 2003). Also, unlike other features of classroom instruction, there is a high level of agreement about this indicator among teachers, students and observers (Clausen, 2002).

Teachers do not act only in the classroom where they instruct students more or less in isolation from other classes and teachers. A modern view of teaching also includes professional activities on the school level, such as co-operating in teams, building professional learning communities, participating in school development, and evaluating and changing working conditions (Darling-Hammond *et al.,* 2005). These activities shape the learning environment on the school level, *i.e.* the school climate, ethos and culture, and thus directly and indirectly (via classroom-level processes) affect student learning. They also have an effect on reports of job satisfaction and self-efficacy. This indicator provides an overview of TALIS data on these issues.

Evidence and explanations

Teacher beliefs about the nature of teaching and learning

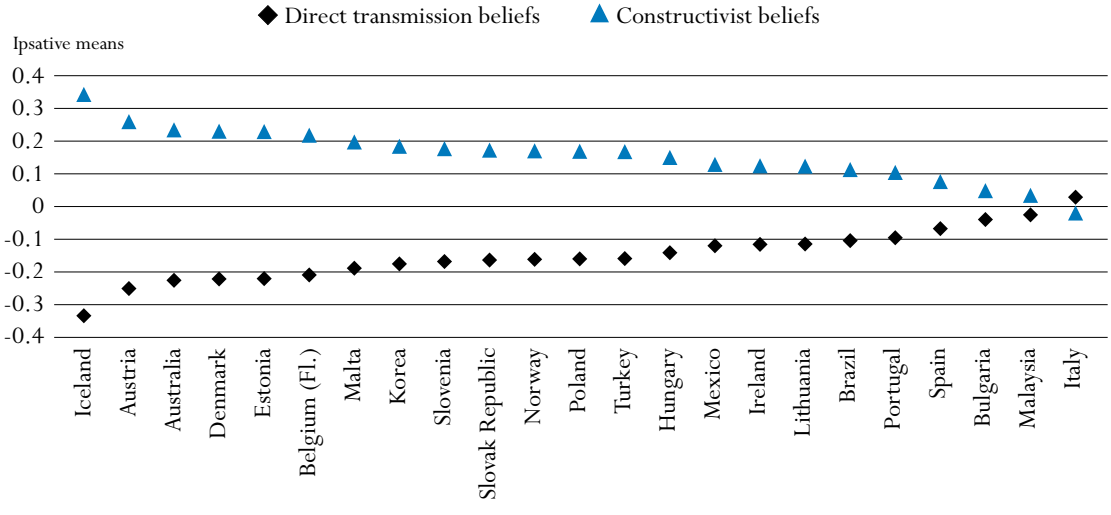
Teacher beliefs about learning and teaching have an important impact on classroom styles and teacher practices. The TALIS report distinguishes between two types of teacher profiles. The **direct transmission** view of student learning implies that a teacher's role is to communicate knowledge in a clear and structured way, to explain correct solutions, to give students clear and resolvable problems, and to ensure calm and concentration in the classroom. In contrast, a **constructivist** view focuses on students not as passive recipients but as active participants in the process of acquiring knowledge. Teachers holding this view emphasise facilitating student inquiry, prefer to give students the chance to develop solutions to problems on their own, and allow students to play active role in instructional activities. Here, the development of thinking and reasoning processes is stressed more than the acquisition of specific knowledge (Staub and Stern, 2002).

There is an ongoing debate about the effects of direct transmission versus constructivist approaches on student achievement, and about the appropriateness of constructivist approaches in non-European countries. TALIS data make it possible to conduct exploratory comparative analysis to learn whether countries differ with regard to profiles of teachers' beliefs. (See Definitions and methodologies section at the end of this indicator for the questionnaire items from which the two indices for teachers' beliefs about teaching were constructed).

Chart D6.2 presents the strength of preference among teachers for one belief (constructivist/direct transmission) over the other. It shows that in all countries but Italy the average endorsement of constructivist beliefs is stronger than that of direct transmission beliefs. In most countries, therefore, teachers believe that their task is not simply to present facts and give their students the opportunity to practice, but rather that they should support students in their active construction of knowledge.

Chart D6.2. Country profiles of beliefs about the nature of teaching and learning (2007-08)

Country mean of ipsative scores



Countries are ranked by the strength of preference among teachers in each country between direct transmission beliefs about teaching and constructivist beliefs about teaching. So, teachers in Iceland show the strongest preference for constructivist beliefs, over direct transmission beliefs.

Source: OECD, *TALIS Database.*

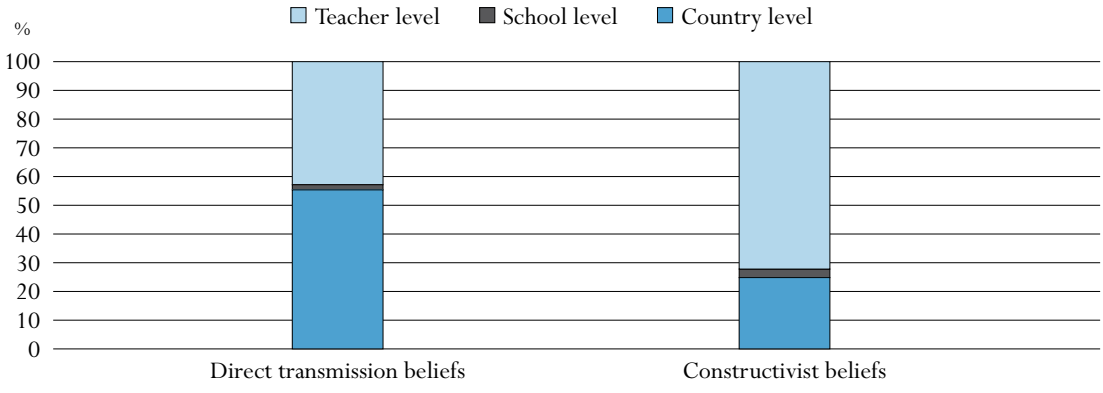
StatLink http://dx.doi.org/10.1787/665115410485

Besides this general agreement on beliefs about instruction, countries differ in the strength of teachers' endorsement of each of the two approaches. The preference for a constructivist view is especially pronounced in Austria, Australia, Belgium (Fl.), Denmark, Estonia and Iceland. Differences in the strength of endorsement are small in Brazil, Bulgaria, Italy, Malaysia, Portugal and Spain. In general, then, teachers in Australia, Korea, north-western Europe and Scandinavia show a stronger preference for a constructivist view than teachers in Malaysia, Mexico/South America and southern Europe. Teachers in eastern European countries lie in between.

Variance across individual, school, and country levels

The question raised by the above data is: to what extent are teachers within schools and within countries similar as a result of their shared socialisation? This was examined by analysing how much of the total variation in teachers' beliefs about teaching lies between countries, between schools and between teachers within schools. Results show that 25% of the variation in teachers' constructivist beliefs and more than 50% of the variation in teachers' direct transmission beliefs are accounted for by variance between countries (Chart D6.3). These are high percentages compared with other TALIS indices measuring teachers' beliefs and practices. This suggests that these variables are very strongly influenced by national school systems, culture and pedagogical traditions.

Chart D6.3. Distribution of total variance across the three levels of analysis for teachers' beliefs about instruction (2007-08)



The chart analyses the variation in teachers' beliefs about instruction and indicates how much of this variation can be attributed to country characteristics (country level), school level characteristics (school level) and individual teacher characteristics.
Source: OECD, *TALIS Database*.
StatLink http://dx.doi.org/10.1787/665115410485

The variance that exists between schools represents only a small proportion of the total variance for both indices. Thus, beliefs about instruction seem to be relatively unaffected by socialisation within the school, the influence of colleagues and superiors, and other school-level factors. This may indicate that these beliefs are formed relatively early during initial education or before and remain stable over time. Stability of teachers' attitudes has been observed before (*e.g.* Nettle, 1998) and is coherent with general findings from psychology that attitudes can be quite resistant to change. It may also be that school-level variables have different effects on individual teachers depending on other personal characteristics. The large within-school variance also suggests that teachers with varying beliefs about instruction may well work side by side in the same school.

Throughout the world educationalists and teacher instructors promote constructivist views about instruction. While most teachers agree, their preferences, influenced by individual characteristics, vary greatly within each country and school. In order to bring teacher beliefs and practices more into line, then, a promising strategy might be to enhance the systematic construction of knowledge about teaching and instruction in teachers' initial education and professional development.

Classroom teaching practices

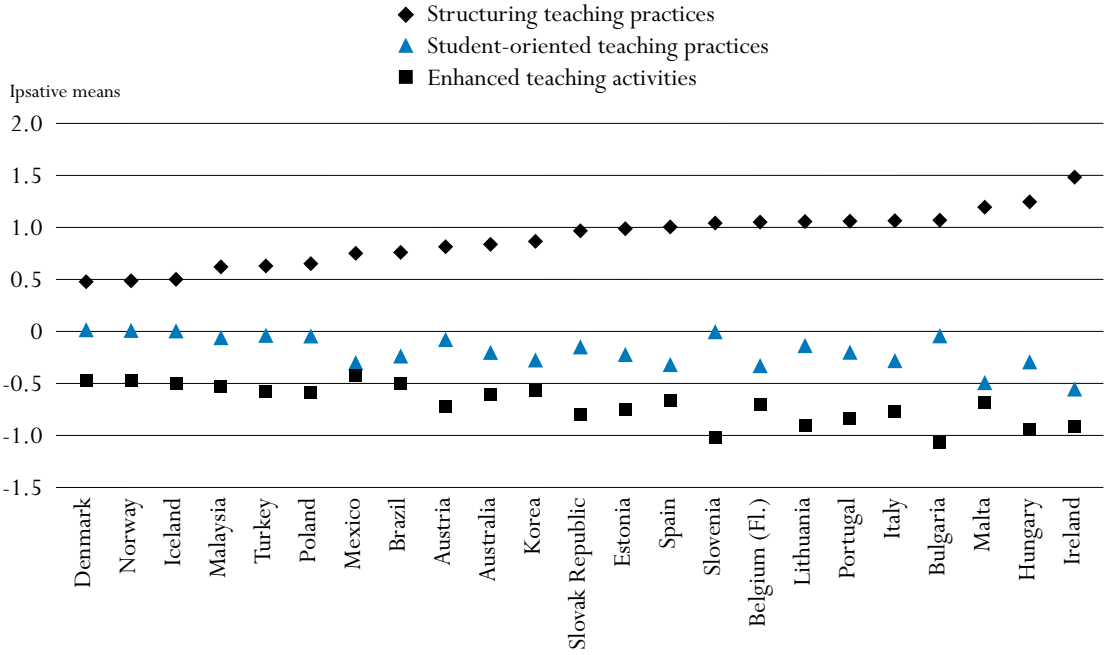
As previously discussed, teacher beliefs about learning and teaching have an important impact on classroom styles and teacher practices. Do countries differ with regard to the profiles of their teaching practices? According to previous research in comparative education (including TIMSS, PIRLS and PISA), countries have quite different profiles in terms of "alternative" teaching practices. Groups of countries with similar cultural backgrounds and pedagogical traditions are likely to have similar profiles. In order to compare teaching practices, three indices of teacher profiles were established. These indices distinguished between three types of practices (see Definitions and methodologies section for the list of questions asked for these indices):

- **Structuring practices**, such as explicitly stating learning goals, summary of earlier lessons, and homework review.
- **Student-oriented practices**, such as working in small groups, ability grouping, student self-evaluation and student participation in classroom planning.
- **Enhanced activities**, such as working on projects that require at least one week to complete, making a product, writing an essay, and debating arguments.

Chart D6.4 presents the strength of reported preference among teachers for one profile of practice (structuring/student-oriented/enhanced activities) over the other. It shows that structuring practices are the most frequently employed practices across all participating countries.

Chart D6.4. Country profiles of classroom teaching practices (2007-08)

Country mean of ipsative scores



Countries are ranked by the relative frequency with which they engage in structuring teaching practices, student-oriented teaching practices and enhanced activities. So, teachers in Denmark adopt the different practices to a fairly similar degree, while teachers in Ireland use structuring teaching practices much more than they do either student-oriented practices and enhanced activities.

Source: OECD, *TALIS Database*.

StatLink http://dx.doi.org/10.1787/665115410485

The relative country means for this index are higher than those for student-oriented practices and enhanced activities in all of the countries. The predominance of structuring practices is most pronounced in Hungary, Ireland and Malta, while teachers in Denmark, Iceland and Norway report using structuring practices only slightly more frequently than the other two practices.

Enhanced activities are less frequently used than student-oriented practices in all participating countries. This implies that teachers in different regions of the world on average allow student co-determination of the lesson, employ ability grouping and give students individually adapted tasks more often than they assign their student projects, debates, essays and the creation of products. Again, a general pattern of relative frequencies is observed but also cross-country differences. In Brazil, Korea, Malta and Mexico the relative average frequencies of enhanced activities and student-oriented practices are very similar. Hence, in these countries the relative frequency of enhanced activities is high compared with other countries. Relatively large differences between student-oriented and enhanced activities are found in Bulgaria and Slovenia.

In summary, in no country on average are student-oriented practices reported to be more frequently used than structuring practices, or in which enhanced activities are reported to be more frequently used than student-oriented practices. It is thus possible to identify culture-general categories for instructional practices and routines. These data indicate that across all countries, the use of student-oriented and enhanced activities could be more encouraged.

Teacher's professional activities: co-operation among teaching staff

A modern view of teaching looks at not just teaching behaviours and practices, but also includes professional activities on the school level, such as co-operating in teams and participating in school development (Darling-Hammond *et al.,* 2005). These activities shape the school climate and thus directly and indirectly (via classroom-level processes) affect student learning. Improving the quality of education and school development requires common goals and co-operation among staff in order to facilitate the co-ordination of resources and strategies of individual teachers. Co-operation among staff also creates opportunities for social and emotional support, exchange of ideas and practical advice. It can thus enhance professionalism and feelings of self-efficacy and prevent stress and "burnout" (*e.g.* Rosenholtz, 1989; Clement and Vandenberghe, 2000).

TALIS used two indices to measure teachers' participation in co-operation with other staff (see Definitions and methodologies section for the list of questions asked for these indices):

- **exchange and co-ordination for teaching:** discussion of teaching material, discussion of student development, team conferences, and ensuring common standards;
- **professional collaboration**: team teaching, observing other teachers to provide feedback, co-ordinating activities across classes, and engaging in professional learning activities.

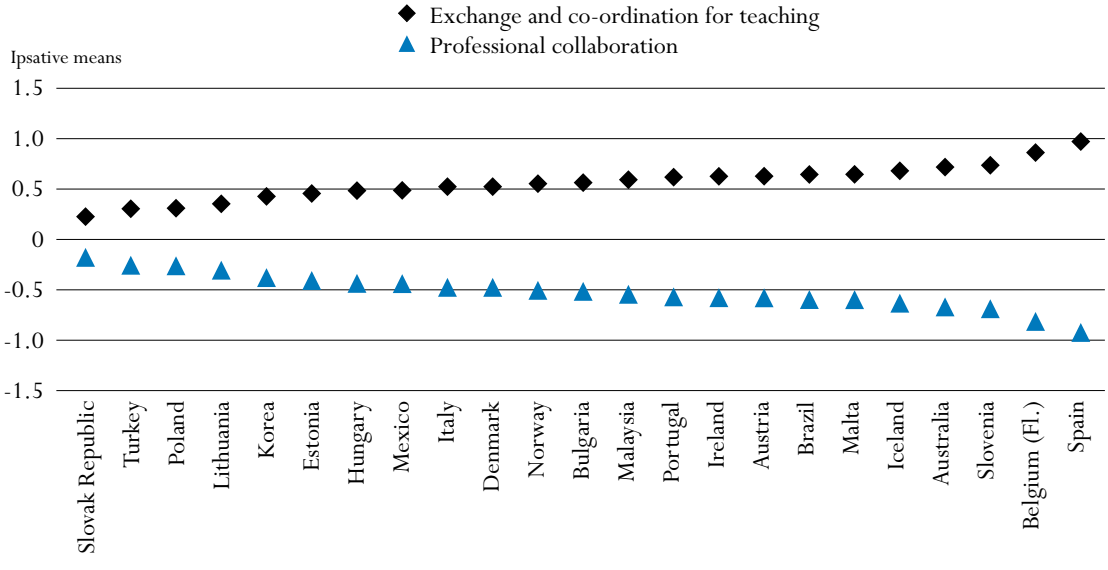
Chart D6.5 presents the strength of reported participation among teachers for one type of co-operation with other staff (exchange and coordination/professional collaboration) over the other. It shows that a majority of teachers across and within countries report exchanging and co-ordinating information and ideas on teaching and administrative issues more often than they engage jointly in professional collaboration activities and projects across subjects and age groups. However there are also cross-country differences. In Estonia, Hungary, Korea, Lithuania, Mexico, Poland, the Slovak Republic and Turkey, differences in the relative frequencies of both forms of

co-operation are comparatively small. In contrast, teachers in Australia, Belgium (Fl.), Iceland, Malta, Slovenia and Spain report the basic forms of exchange and co-ordination of teaching to be noticeably more common than professional collaboration.

Both kinds of co-operation are important practices which can enhance school development and effectiveness and ensure the professionalism and the well-being of teachers. However these data show that professional collaboration practices are still relatively rare compared with practices that focus on co-ordination and exchange of information and material. It may be useful to enhance and support such practices, especially in the countries with the lowest reported presence of these opportunities.

Chart D6.5. Country profiles of co-operation among staff (2007-08)

Country mean of ipsative scores



Countries are ranked in ascending order of the degree to which teachers engage in exchange and co-ordination for teaching more than professional collaboration. For example, for teachers in the Slovak Republic both types of co-operation are reported almost equally frequently, while teachers in Spain report a more common practice of exchange and co-ordination for teaching over professional collaboration.

Source: OECD, *TALIS Database*.

StatLink http://dx.doi.org/10.1787/665115410485

Classroom environment, discipline, and time on task

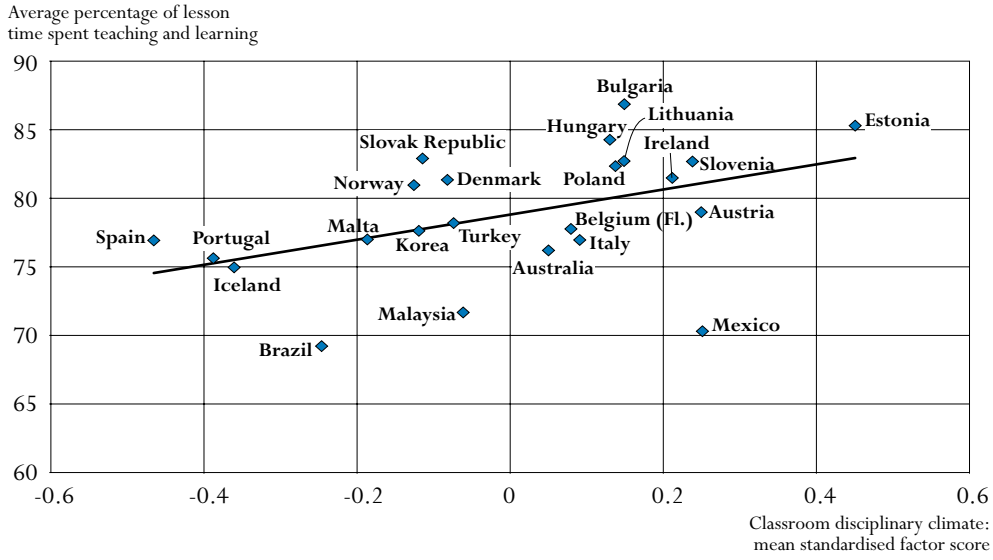
Studies conducted in different regions of the world have shown that classroom climate is one of the most important predictors of student achievement (*e.g.* Brophy and Good, 1986; Mortimore *et al.*, 1988; Wang, Haertel and Walberg, 1997). TALIS focuses on the disciplinary climate because it has a strong impact on student learning in various subjects (Klieme and Rakoczy, 2003; Rakoczy *et al.*, 2007), and because it has been shown that – unlike other features of classroom climate – there is a high level of agreement about this indicator among teachers, students and observers.

To measure classroom disciplinary climate, TALIS asked teachers whether they had to cope with a lot of noise and interruptions during lessons and whether they find the learning atmosphere

pleasant (see Definitions and methodologies section). This measure is adapted from the PISA student questionnaire. An additional measure of the environment at the classroom level derived from TALIS data is an index for "time on task". Teachers were asked about the percentage of time they typically spend on actual teaching and learning in the target class. Time on task is a central aspect of instructional effectiveness because it provides students with a maximum opportunity to learn.

As Chart D6.1 demonstrates, teachers in most participating countries spend almost 80% of their lesson time on teaching and learning. However, valuable lesson time is lost through disruptions and administrative tasks. Analysis of teacher responses indicates that one in four teachers in most countries lose at least 30% of their lesson time to these factors. In addition, Chart D6.6 and Table D6.1 show that, as expected, classroom disciplinary climate and time on task are related both within and between countries. The better the classroom disciplinary climate, the more time spent on actual teaching and learning.

Chart D6.6. Country means for two indicators of the quality of the classroom environment (2007-08)



Factor scores are standardised, so that the international mean equals zero and the international standard deviation equals one (see TALIS Technical Report, *forthcoming). Thus a negative score indicates a score for classroom disciplinary climate that is below the international average. This may not necessarily indicate a poor classroom disciplinary climate.*

Source: OECD, *TALIS Database*.

StatLink http://dx.doi.org/10.1787/665115410485

Within-country correlations between these aspects are significant in all countries, and they are 0.5 or more in many. At the country level, countries in which teachers report spending a comparatively small percentage of time on teaching and learning also have a low mean score for classroom disciplinary climate. This mainly concerns Brazil, Iceland, Korea, Malaysia, Malta, Portugal, Spain and Turkey. Likewise, countries with a high mean score for classroom disciplinary

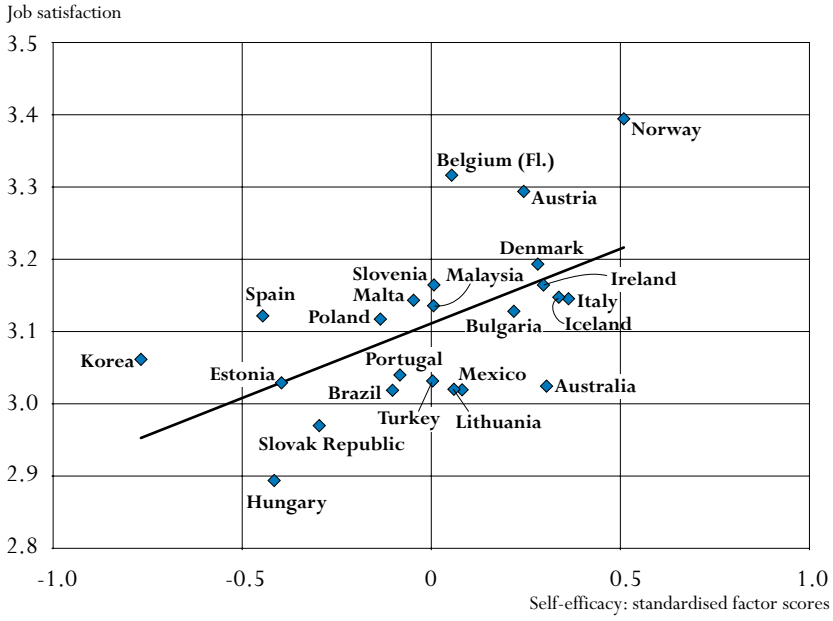
climate also have comparatively high mean scores for time on task. This is the case for Estonia and to a lesser extent for Austria, Bulgaria, Hungary, Ireland, Lithuania, Poland and Slovenia. Mexico is a notable exception in that teachers view the classroom disciplinary climate quite positively despite the low average score for time on task.

Overall, a majority of teachers in all participating countries report using lesson time effectively. Nevertheless, a considerable percentage of teachers in each of the countries, and especially in Brazil, Malaysia and Mexico, are not able to provide their students with adequate time for learning. Generally, time loss is largely due to disciplinary problems, although administrative issues also distract from actual teaching and learning, especially in Mexico.

Job-related attitudes: self-efficacy and job satisfaction

In addition to pedagogical beliefs and attitudes, TALIS addresses job-related attitudes, namely job satisfaction and teacher self-efficacy. Job satisfaction is a central concept in organisational and work psychology. It is assumed that job satisfaction is both affected by the work situation and influences work-related behaviour, including performance, absenteeism and turnover (Dormann and Zapf, 2001). Strong self-efficacy beliefs can prevent stress and burnout and teachers' self-efficacy beliefs and their job satisfaction are linked to instructional practices and student achievement (*e.g.* Ashton and Webb, 1986; Ross, 1998).

Chart D6.7. Country means of teacher self-efficacy and job satisfaction (2007-08)



Factor scores are standardised, so that the international mean is zero and the international standard deviation equals one (see TALIS Technical Report, *forthcoming). Thus a negative score indicates a score for self-efficacy that is below the international average. This may not necessarily indicate a low level of self-efficacy. The score for job satisfaction represents the extent of agreement on average with the statement "All in all I am satisfied with my job", where strongly agree = 4 points, agree = 3 points, disagree = 2 points and strongly disagree = 1 point.*

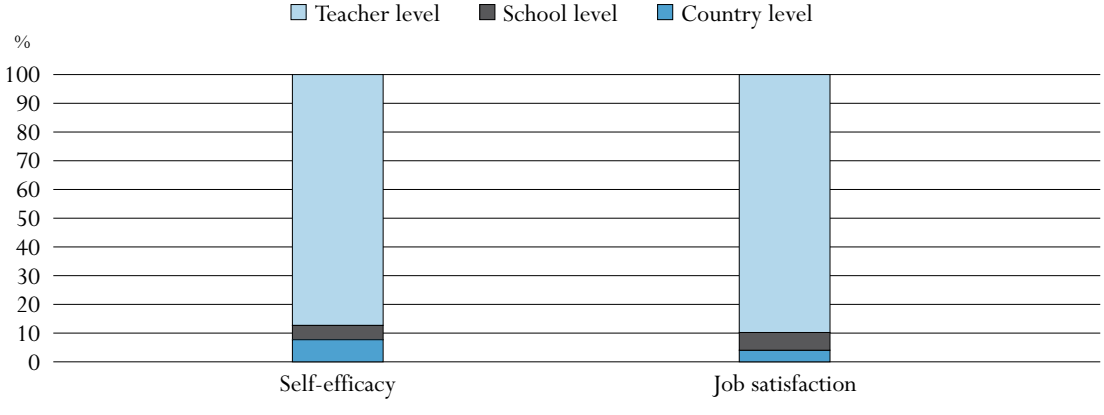
Source: OECD, *TALIS Database*.

StatLink http://dx.doi.org/10.1787/665115410485

In TALIS, the teacher self-efficacy index was constructed from four items of the teacher questionnaire which asked teachers, for instance, how strongly they felt that they made an educational difference in students' lives and how well they were able to make progress with the most difficult and unmotivated students (see Definitions and methodologies section for the list of items). Country means for the self-efficacy index and for the single item measuring job satisfaction are illustrated in Chart D6.7.

Generally there are small country differences in self-efficacy and job satisfaction. Norway has an exceptionally high mean score for both self-efficacy and job satisfaction. Teachers in Austria and Belgium (Fl.) are also relatively satisfied with their job. For Hungary and the Slovak Republic, however, average job satisfaction is low compared to that of the other participating countries. Comparatively weak self-efficacy beliefs are reported by teachers in Estonia, Hungary, Korea and Spain and to a lesser extent the Slovak Republic. However these data are country means, and an analysis of the variance (between country, school, and individual levels) indicates that the most variance (87% and 90%, respectively) is at the teacher level.

Chart D6.8. Distribution of total variance across the three levels of analysis for self efficacy and job satisfaction (2007-08)



Source: OECD, *TALIS Database*.

StatLink http://dx.doi.org/10.1787/665115410485

Only 5% and 6% (self-efficacy and job satisfaction respectively), of the total variance is between schools and only 8% and 4%, respectively, is variance between countries. Thus, teachers within a school vary markedly in their levels of self-efficacy and job satisfaction, while differences between schools and between countries are rather small. Furthermore, variance at the school level is relatively similar across countries. These results emphasise the psychological nature of the constructs and the fact that across countries, teachers' self-efficacy and job satisfaction depend on and interact with their personality, personal experiences, competencies and attitudes. This should be considered in interventions aiming at enhancing teachers' self-efficacy, as these results suggest that individualised interventions may be more effective than school or system level policies.

Definitions and methodologies

Data are from the first OECD-TALIS Teaching and Learning International Survey and refer to the school year 2007/08. TALIS collected data from school principals and teachers. For this indicator, the data from teachers includes reports of their teaching practices, beliefs, attitudes, and professional activities. They also cover classroom disciplinary climate, job satisfaction, feelings of self-efficacy, and relations with students.

The focus of TALIS was lower secondary education as defined by level 2 of the International Standard Classification for Education (ISCED).

Analysis and computation of scores

Analysis was conducted to test for cross-cultural consistency of the indices on teaching practices, teachers' beliefs and attitudes (see Annex A1.1 in OECD [2009e] and *TALIS Technical Report,* forthcoming, for full details). This analysis indicated that countries' mean scores on these indices are not directly comparable. The analysis in this section therefore focuses on profiles within countries and in particular on the extent to which teachers endorse one belief over the other. To do this, teachers' responses are standardised and presented as *ipsative scores,* which describe the relative endorsement of the two indices (see Box D6.1).

Box D6.1. Computation of ipsative scores

Calculating ipsative scores is an approach to standardising individual responses to express them as preferences between two or more options and thus helps reduce the effects of response bias (Fischer, 2004). For teachers' beliefs about instruction, ipsative scores were computed by subtracting the individual mean across all of the eight items measuring teachers' beliefs from the individual mean across the four items belonging to the index direct transmission beliefs about instruction and also from the four items measuring constructivist beliefs about instruction. Thus, mean scores were calculated for both indices and corrected for the overall tendency to accept any of the belief items. The means across both indices average zero for each teacher, and therefore the country means across both indices also equal zero. The resulting score of an individual teacher is the relative endorsement of this index or the relative position of the individual on one index in relation to the other index. Positive score values indicate that one set of beliefs receives a relatively stronger support than the other. The standard deviation describes the variability of the relative endorsement. Given that the variable follows a Normal distribution, about two-thirds of teachers have an ipsative score that lies in the range of the mean score plus or minus one standard deviation.

Questionnaire items

The following boxes provide the questionnaire items that comprise the indices that are covered this indicator.

Teacher beliefs

The two indices for teachers' beliefs about teaching comprise the following questionnaire items:

Direct transmission beliefs about teaching

- Effective/good teachers demonstrate the correct way to solve a problem.
- Instruction should be built around problems with clear, correct answers, and around ideas that most students can grasp quickly.
- How much students learn depends on how much background knowledge they have; that is why teaching facts is so necessary.
- A quiet classroom is generally needed for effective learning.

Constructivist beliefs about teaching

- My role as a teacher is to facilitate students' own inquiry.
- Students learn best by finding solutions to problems on their own.
- Students should be allowed to think of solutions to practical problems themselves before the teacher shows them how they are solved.
- Thinking and reasoning processes are more important than specific curriculum content.

Analysis was conducted to test for cross-cultural consistency of the indices on teaching practices, teachers' beliefs and attitudes (see Annex A1.1 in OECD [2009e] and the *TALIS Technical Report,* [forthcoming]).

Teaching practices

The questionnaire items comprising the three teaching practice indices are as follows:

Index of structuring practices

- I explicitly state learning goals.
- I review with the students the homework they have prepared.
- At the beginning of the lesson I present a short summary of the previous lesson.
- I check my students' exercise books.
- I check, by asking questions, whether or not the subject matter has been understood.

Index of student oriented practices

- Students work in small groups to come up with a joint solution to a problem or task.
- I give different work to the students that have difficulties learning and/or to those who can advance faster.
- I ask my students to suggest or to help plan classroom activities or topics.
- Students work in groups based upon their abilities.

Index of enhanced activities

- Students work on projects that require at least one week to complete.
- Students make a product that will be used by someone else.
- I ask my students to write an essay in which they are expected to explain their thinking or reasoning at some length.
- Students hold a debate and argue for a particular point of view which may not be their own.

In the analysis to test the cross-cultural validity of these indices, configural and metric invariance was achieved but scalar invariance was not. Country means on the index are therefore not directly comparable. The analysis therefore focuses more on the pattern of cross-cultural differences than on specific country-by-country comparisons of the index scores (see Annex A1.1 in OECD [2009e] and the *TALIS Technical Report,* [forthcoming]).

Co-operation among teachers

The questionnaire items comprising these two indices are as follows:

Index of exchange and co-ordination for teaching

- Discuss and decide on the selection of instructional media (*e.g.* textbooks, exercise books).
- Exchange teaching materials with colleagues.
- Attend team conferences for the age group I teach.
- Ensure common standards in evaluations for assessing student progress.
- Engage in discussion about the learning development of specific students.

Index of professional collaboration

- Teach jointly as a team in the same class.
- Take part in professional learning activities (*e.g.* team supervision).
- Observe other teachers' classes and provide feedback.
- Engage in joint activities across different classes and age groups (*e.g.* projects).
- Discuss and coordinate homework practice across subjects.

In the analysis to test the cross-cultural validity of these indices, configural and metric invariance was achieved but scalar invariance was not. Country means on the index are therefore not directly comparable. The analysis therefore focuses more on the pattern of cross-cultural differences than on specific country-by-country comparisons of the index scores (see Annex A1.1 in OECD [2009e] and the *TALIS Technical Report,* [forthcoming]).

Classroom environment, discipline, and time on task

Index of classroom disciplinary climate

The questionnaire items comprising this index are as follows:

- When the lesson begins, I have to wait quite a long time for students to <quieten down>.
- Students in this class take care to create a pleasant learning atmosphere.
- I lose quite a lot of time because of students interrupting the lesson.
- There is much noise in this classroom.

This index was correlated with ratings of time on task in order to get a measure of the quality of the classroom environment. In the analysis to test the cross-cultural validity of this index, configural and metric invariance was achieved. Although full scalar invariance was not established, the fit of the models for testing this was sufficiently close to allow an examination of the global picture of mean score differences, though direct comparisons of country means should be avoided (see Annex A1.1 in OECD [2009e] and the *TALIS Technical Report,* [forthcoming]).

Job-related attitudes: self-efficacy and job satisfaction

Index of teachers' self-efficacy

The questionnaire items comprising this index are as follows:

- I feel that I am making a significant educational difference in the lives of my students.
- If I try really hard, I can make progress with even the most difficult and unmotivated students.
- I am successful with the students in my class.
- I usually know how to get through to students.

This index was combined with mean scores for the single item measuring job satisfaction in order to get a measure of job-related attitudes. In the analysis to test the cross-cultural validity of this index, configural and metric invariance was achieved. Although full scalar invariance was not established, the fit of the models for testing this was sufficiently close to allow an examination of the global picture of mean score differences, though direct comparisons of country means should be avoided (see Annex A1.1 in OECD [2009e] and the *TALIS Technical Report,* [forthcoming]).

Further references

The following additional material relevant to this indicator is available through TALIS (Teaching and Learning International Survey) on line at *www.oecd.org/edu/TALIS/*.

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Table D6.1.

Correlation between time on task[1] and classroom disciplinary climate (2007-08)

Teachers of lower secondary education

TALIS countries	Correlation coefficient (r_{xy})[2]	(S.E.)
Australia	0.63	(0.019)
Austria	0.56	(0.014)
Belgium (Fl.)	0.54	(0.018)
Brazil	0.31	(0.022)
Bulgaria	0.50	(0.021)
Denmark	0.57	(0.024)
Estonia	0.62	(0.017)
Hungary	0.61	(0.020)
Iceland	0.48	(0.029)
Ireland	0.65	(0.015)
Italy	0.46	(0.018)
Korea	0.21	(0.018)
Lithuania	0.35	(0.018)
Malaysia	0.36	(0.024)
Malta	0.58	(0.026)
Mexico	0.20	(0.027)
Norway	0.56	(0.018)
Poland	0.46	(0.024)
Portugal	0.59	(0.016)
Slovak Republic	0.49	(0.020)
Slovenia	0.51	(0.019)
Spain	0.61	(0.014)
Turkey	0.41	(0.029)

1. Percentage of classroom time spent on teaching and learning.
2. Statistically significant at the 5% level.

Source: OECD, *TALIS Database*.

StatLink http://dx.doi.org/10.1787/665115410485

Annex

1

Characteristics of Educational Systems

The typical graduation age is the age at the end of the last school/academic year of the corresponding level and programme when the degree is obtained. The age normally corresponds to the age of graduation.
(Note that at some levels of education the term "graduation age" may not translate literally and is used here purely as a convention.)

Table X1.1a.

Upper secondary graduation rate: typical graduation ages and method used to calculate graduation rates (2007)

		Typical graduation ages					
		Programme orientation		Educational/labour market destination			
		General programmes	Pre-vocational or vocational programmes	ISCED 3A programmes	ISCED 3B programmes	ISCED 3C short programmes[1]	ISCED 3C long programmes[1]
OECD countries	Australia	17	17	17	17	17	17
	Austria	17-18	17-19	17-18	17-19	14-15	16-17
	Belgium	18	18	18	a	18	18
	Canada	17-18	17-18	17-18	a	a	17-18
	Czech Republic	19	18	19	19	a	18
	Denmark	18-19	20-21	18-19	a	23	20-21
	Finland	19	19	19	a	a	a
	France	18-19	17-21	18-19	19-21	17-19	18-23
	Germany	19-20	19-20	19-20	19-20	19-20	a
	Greece	18	18	18	a	18	18
	Hungary	19	19	19	a	18	19
	Iceland	19	17	19	21	17	20
	Ireland	18	19	18	a	19	18
	Italy	19	18	19	18	17	a
	Japan	18	18	18	18	16	18
	Korea	17	17	17	a	a	17
	Luxembourg	18	17-20	18-19	19-20	17-18	18-19
	Mexico	18	18	18	a	a	18
	Netherlands	17-18	18-20	17-20	a	18	18-19
	New Zealand	17-18	17-18	18	17	17	17
	Norway	18	19-20	18	a	m	19-20
	Poland	19	20	19	a	a	19
	Portugal	17	17-18	17	m	m	m
	Slovak Republic	19	19	19	a	18	18
	Spain	17	17	17	a	17	17
	Sweden	18	18	18	n	n	18
	Switzerland	18-20	18-20	18-20	18-20	17-19	18-20
	Turkey	16-17	16-17	16-17	a	m	a
	United Kingdom	16-18	16-18	18	18	16	16
	United States	17	m	17	m	m	m
Partner countries	Brazil	18	18	17	18	a	a
	Chile	17	17	17	a	a	a
	Estonia	19	19	19	a	19	a
	Israel	17	17	17	a	a	17
	Russian Federation	17	17	17	17	16	17
	Slovenia	19	17-19	19	19	17	18

1. Duration categories for ISCED 3C – Short: at least one year shorter than ISCED 3A/3B programmes; Long: of similar duration to ISCED 3A or 3B programmes.

Source: OECD.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/681781308672

Table X1.1a. *(continued)*

Upper secondary graduation rate: typical graduation ages and method used to calculate graduation rates (2007)

		Graduation rates calculation: Gross versus net						
		First-time graduates	ISCED 3A programmes	ISCED 3B programmes	ISCED 3C short programmes[1]	ISCED 3C long programmes[1]	General programmes	Pre-vocational or vocational programmes
OECD countries	**Australia**	m	gross	m	net	m	gross	net
	Austria	m	net	net	net	net	net	net
	Belgium	m	net	a	net	net	net	net
	Canada	gross	gross	a	gross	a	gross	gross
	Czech Republic	gross	gross	gross	gross	a	gross	gross
	Denmark	net	net	a	net	net	net	net
	Finland	net	net	a	a	a	net	net
	France	m	net	net	net	net	net	net
	Germany	gross	gross	gross	a	gross	gross	gross
	Greece	net	net	a	net	m	net	net
	Hungary	net	net	a	net	m	net	net
	Iceland	net	net	net	net	net	net	net
	Ireland	net	net	a	net	net	net	net
	Italy	net	net	gross	a	gross	net	net
	Japan	gross	gross	gross	gross	m	gross	gross
	Korea	gross	gross	a	gross	a	gross	gross
	Luxembourg	net	net	net	net	net	net	net
	Mexico	net	net	a	net	a	net	net
	Netherlands	m	net	a	net	net	net	net
	New Zealand	gross	m	m	m	m	m	m
	Norway	net	net	a	net	m	net	net
	Poland	net	net	a	net	a	net	net
	Portugal	m	net	m	m	m	net	net
	Slovak Republic	net	net	a	net	net	net	net
	Spain	gross	gross	a	gross	gross	gross	gross
	Sweden	net	net	n	net	n	net	net
	Switzerland	gross	gross	gross	gross	m	gross	gross
	Turkey	net	net	a	a	m	net	net
	United Kingdom	gross	m	m	m	m	m	m
	United States	net	m	m	m	m	m	m
Partner countries	**Brazil**	m	net	net	a	a	net	net
	Chile	net	net	a	a	a	net	net
	Estonia	m	net	a	a	net	net	net
	Israel	net	net	a	net	a	net	net
	Russian Federation	m	gross	gross	gross	m	gross	gross
	Slovenia	gross	net	net	net	net	net	net

1. Duration categories for ISCED 3C – Short: at least one year shorter than ISCED 3A/3B programmes; Long: of similar duration to ISCED 3A or 3B programmes.

Source: OECD. See definitions of gross and net rates in Indicator A2.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/681781308672

Table X1.1b.

Post-secondary non-tertiary graduation rate: typical graduation ages and method used to calculate graduation rates (2007)

		Typical graduation ages			Graduation rates calculation: Gross versus net			
		Educational/labour market destination			Educational/labour market destination			
		ISCED 4A programmes	ISCED 4B programmes	ISCED 4C programmes	First-time graduates	ISCED 4A programmes	ISCED 4B programmes	ISCED 4C programmes
OECD countries	**Australia**	a	a	18-20	m	a	a	net
	Austria	18-19	19-20	24-25	m	net	net	net
	Belgium	19	19-21	19-21	m	net	net	net
	Canada	m	a	30-34	m	m	a	m
	Czech Republic	21	a	21	gross	gross	a	gross
	Denmark	21	a	a	net	net	a	a
	Finland	a	a	35-39	net	a	a	net
	France	22-25	a	22-25	m	gross	a	gross
	Germany	22	22	a	gross	gross	gross	a
	Greece	a	a	20	net	a	a	net
	Hungary	a	a	20	net	a	a	net
	Iceland	n	n	26	net	n	n	net
	Ireland	a	a	23	net	a	a	net
	Italy	a	a	20	net	a	a	net
	Japan	19	19	19	m	m	m	m
	Korea	a	a	a	a	a	a	a
	Luxembourg	a	a	22-24	net	a	a	net
	Mexico	a	a	a	a	a	a	m
	Netherlands	a	a	20-21	m	a	a	net
	New Zealand	18-19	18-19	18-19	net	m	m	m
	Norway	20-21	a	21-22	net	net	a	net
	Poland	a	a	21	net	a	a	net
	Portugal	19-20	19-20	19-20	m	m	m	m
	Slovak Republic	22	a	a	net	net	a	a
	Spain	a	a	a	a	a	a	a
	Sweden	n	n	19-20	net	n	n	net
	Switzerland	21-23	21-23	a	gross	gross	gross	a
	Turkey	a	a	a	a	a	a	a
	United Kingdom	m	m	m	m	m	m	m
	United States	m	m	m	m	m	m	m
Partner countries	**Brazil**	a	a	a	a	a	a	a
	Chile	a	a	a	a	a	a	a
	Estonia	a	21	a	m	a	m	a
	Israel	m	a	a	m	m	a	a
	Russian Federation	a	a	19	m	a	a	gross
	Slovenia	20	20	n	net	net	gross	n

Source: OECD. See definitions of gross and net rates in Indicator A2.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/681781308672

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Table X1.1c.

Tertiary graduation rate: typical graduation ages and method used to calculate graduation rates (2007)

		Typical graduation ages				
			Tertiary-type A (ISCED 5A)			Advanced research programmes (ISCED 6)
		Tertiary-type B (ISCED 5B)	3 to less than 5 years	5 to 6 years	More than 6 years	
OECD countries	**Australia**	19-21	20-22	21-23	24	25-26
	Austria	21-23	22-24	24-26	a	27-29
	Belgium	21-22	22	23-24	24	26-29
	Canada	21-24	22	23-24	25	27-29
	Czech Republic	22-23	23	25	23-26	28
	Denmark	23-25	24	26	26	30-34
	Finland	24-27	24	26	35-39	30-34
	France	20-24	20-23	22-25	28-29	27-29
	Germany	21-23	24-26	25-27	a	28-29
	Greece	22-24	22-23	25-27	a	28-29
	Hungary	21	23	24	a	30-34
	Iceland	27-28	23-24	25	n	30-34
	Ireland	20-21	21	23	25	27
	Italy	22-23	23	25	30-34	29
	Japan	20	22	24	25	27
	Korea	21-23	21	23	a	30-34
	Luxembourg	m	m	m	m	m
	Mexico	20	23	23-26	m	24-28
	Netherlands	n	21-23	23-25	a	28-29
	New Zealand	19-20	21-22	22-23	25	29
	Norway	21-22	22-23	24-25	26-27	28-29
	Poland	22	23	25	a	25-29
	Portugal	21-23	22	23-24	25-29	30-34
	Slovak Republic	22	23	24	a	28
	Spain	19	20	22	27-28	25-27
	Sweden	22	25	25	n	30-34
	Switzerland	23-29	24-26	25-27	25-27	30-34
	Turkey	20-21	22-23	25-26	30-34	30-34
	United Kingdom	19-24	20-22	22-24	23-25	25-29
	United States	20	22	24	25	27
Partner countries	**Brazil**	22	22	m	m	30-34
	Chile	22-25	23-25	24-26	25-27	30-34
	Estonia	22	22	24	a	30-34
	Israel	m	26	a	a	30-34
	Russian Federation	20	21	22	n	24-26
	Slovenia	23-26	25-26	25-26	a	29

Note: Where tertiary-type A data are available by duration of programme, the graduation rate for all programmes is the sum of the graduation rates by duration of programme.
Source: OECD.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/681781308672

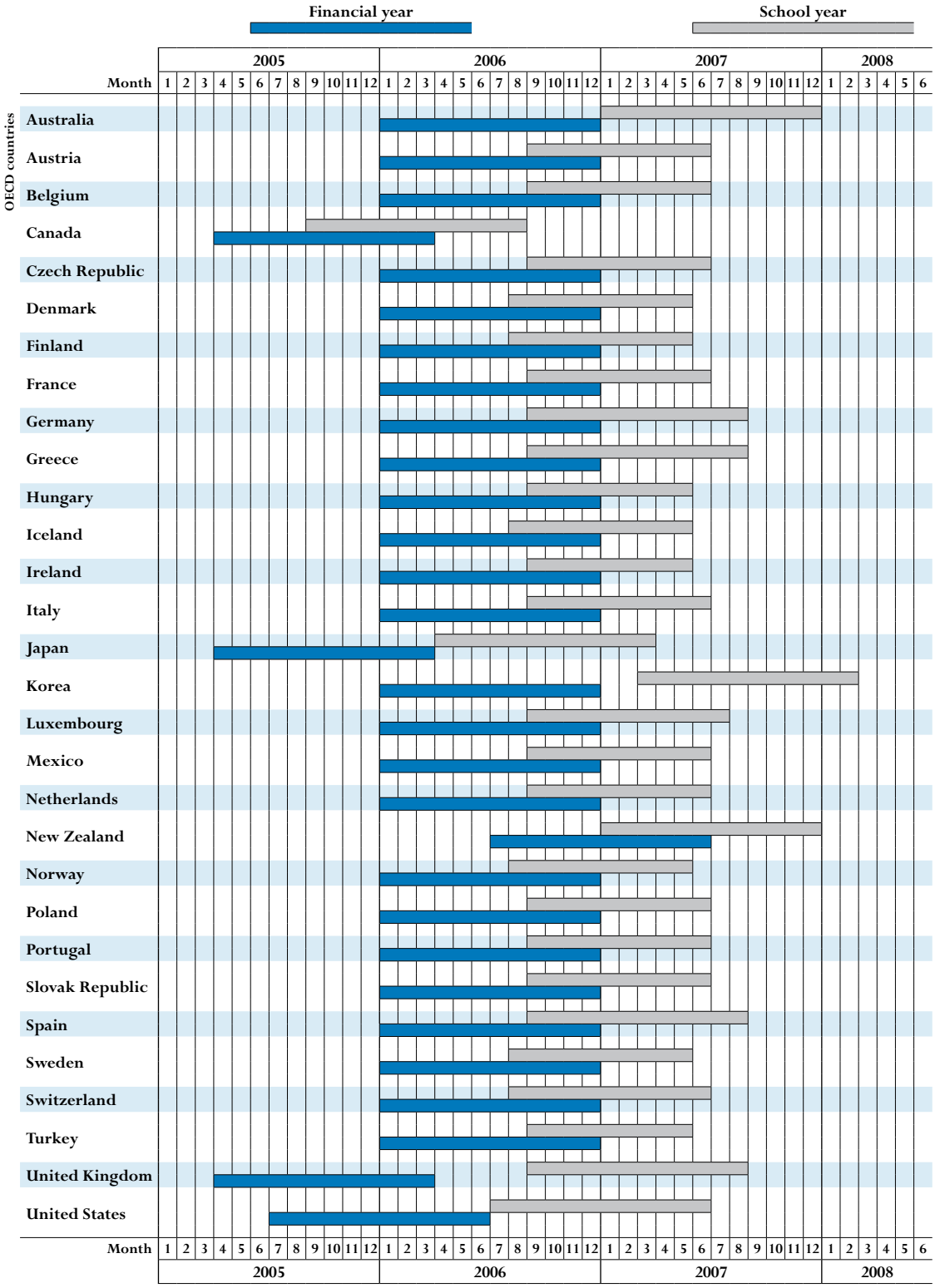
Table X1.1c. *(continued)*

Tertiary graduation rate: typical graduation ages and method used to calculate graduation rates (2007)

		Graduation rates calculation: Gross versus net											
		Tertiary-type B (ISCED 5B)				Tertiary-type A (ISCED 5A)						Advanced research programmes (ISCED 6)	
		First-time		First degree		First-time		First degree		Second degree			
		Graduation rate (all students)	Graduation rate for international/ foreign students only	Graduation rate (all students)	Graduation rate for international/ foreign students only	Graduation rate (all students)	Graduation rate for international/ foreign students only	Graduation rate (all students)	Graduation rate for international/ foreign students only	Graduation rate (all students)	Graduation rate for international/ foreign students only	Graduation rate (all students)	Graduation rate for international/ foreign students only
OECD countries	Australia	m	m	net	m	net	net	net	net	net	net	net	net
	Austria	net	m	net	net	net	net	net	net	net	net	net	net
	Belgium	m	m	net	gross	m	m	net	gross	net	gross	net	gross
	Canada	m	m	m	m	gross	m	net	gross	net	gross	net	gross
	Czech Republic	gross	gross	gross	gross	net	net	net	net	net	net	net	net
	Denmark	net	net	net	net	net	net	net	net	net	net	net	net
	Finland	net	n	net	n	net	m	net	net	net	m	net	net
	France	m	m	gross	gross	m	m	gross	gross	gross	gross	gross	gross
	Germany	gross	m	gross	m	net	net	net	net	net	net	net	net
	Greece	net	m	net	m	net	m	net	m	net	m	gross	m
	Hungary	gross	m	net	gross	gross	m	net	gross	net	gross	net	gross
	Iceland	net	net	net	net	net	net	net	net	net	net	net	net
	Ireland	m	m	gross	m	gross	m	gross	m	gross	m	gross	m
	Italy	m	gross	net	gross	net	net	net	net	net	gross	gross	gross
	Japan	gross	m	gross	gross	gross	m	gross	gross	gross	gross	gross	gross
	Korea	m	m	net	net	m	m	net	net	net	net	net	net
	Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m
	Mexico	m	m	net	m	m	m	net	m	gross	m	gross	m
	Netherlands	n	m	net	n	net	m	net	net	net	net	gross	m
	New Zealand	net	net	net	net	net	net	net	net	net	net	net	net
	Norway	net	m	net	gross	net	m	net	gross	net	gross	net	gross
	Poland	net	m	net	m	net	m	net	gross	net	gross	gross	m
	Portugal	net	m	net	gross	net	m	net	gross	net	gross	net	gross
	Slovak Republic	net	m	net	m	net	m	net	gross	net	gross	net	gross
	Spain	net	m	net	m	gross	m	net	m	net	m	net	m
	Sweden	net	net	net	net	net	net	net	net	net	net	net	net
	Switzerland	gross	m	gross	m	net	m	net	gross	net	gross	net	gross
	Turkey	net	m	net	gross	m	m	net	gross	net	gross	net	gross
	United Kingdom	net	m	net	gross	net	m	net	gross	net	gross	net	gross
	United States	gross	m	gross	gross	gross	m	gross	gross	gross	gross	gross	gross
Partner countries	Brazil	m	m	m	m	m	m	net	m	net	m	net	m
	Chile	m	m	net	m	m	m	net	m	net	m	net	m
	Estonia	m	m	net	gross	m	m	net	gross	net	gross	net	gross
	Israel	m	m	m	m	net	m	net	m	net	m	net	m
	Russian Federation	m	m	gross	gross	m	m	gross	gross	gross	m	gross	m
	Slovenia	net	m	net	gross	net	m	net	gross	net	gross	net	m

Source: OECD. See definitions of gross and net rates in Indicator A3.
Please refer to the Reader's Guide for information concerning the symbols replacing missing data.
StatLink http://dx.doi.org/10.1787/681781308672

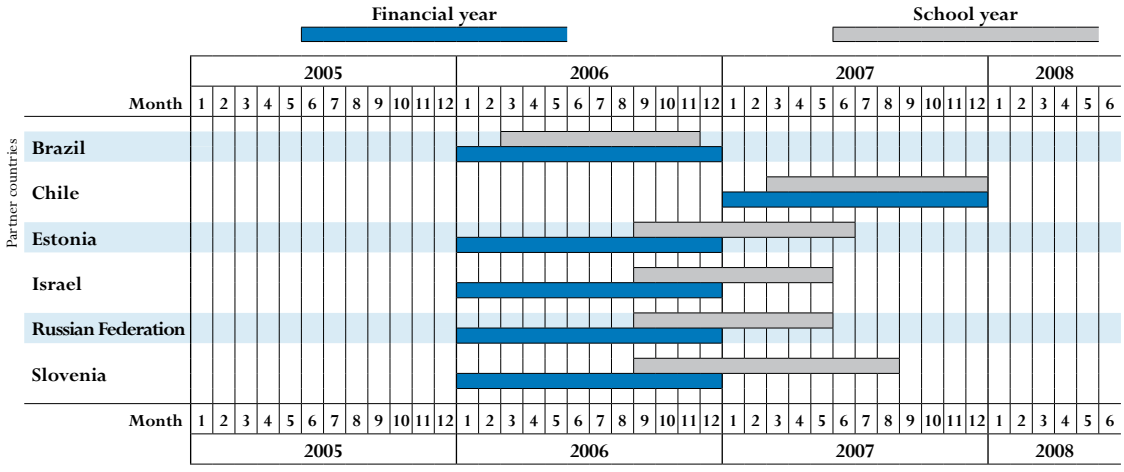
Table X1.2a.
School year and financial year used for the calculation of indicators, OECD countries



Source: OECD.
StatLink http://dx.doi.org/10.1787/681781308672

Table X1.2b.

School year and financial year used for the calculation of indicators, partner countries



Source: OECD.

StatLink http://dx.doi.org/10.1787/681781308672

Table X1.3.

Summary of completion requirements for upper secondary programmes

		ISCED 3A programmes				ISCED 3B programmes				ISCED 3C programmes			
		Final examination	Series of examinations during programme	Specified number of course hours, AND examination	Specified number of course hours only	Final examination	Series of examinations during programme	Specified number of course hours, AND examination	Specified number of course hours only	Final examination	Series of examinations during programme	Specified number of course hours, AND examination	Specified number of course hours only
OECD countries	**Australia**[1, 2]	N/Y	Y	Y	N	N	Y	N	N	N	Y	N	N
	Austria	Y	Y	Y	N	Y	Y	Y	N	N	Y	Y	N
	Belgium (Fl.)[3]	Y	Y	N	N	a	a	a	a	Y	Y	N	N
	Belgium (Fr.)	Y	Y	N	N	a	a	a	a	Y	Y	N	N
	Canada (Québec)[1]	N	Y	Y	N					N	Y	Y	N
	Czech Republic[1]	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y	N
	Denmark[1]	Y	Y	Y		a	a	a	a	Y	Y	Y	
	Finland	Y/N	Y	Y	N								
	France	Y	N	Y	N	a	a	a	a	Y/N	Y	N	
	Germany	Y	Y	N	N	Y	Y	N	N	Y	Y	N	N
	Greece[1]	N	Y	N	N					N	Y	N	N
	Hungary	Y	N	Y	N	a	a	a	a	Y	N	Y	N
	Iceland[1]	Y/N	Y	N	N	Y	Y	N	N	Y/N	Y	N	N
	Ireland[1]	Y	N	N	N	a	a	a	a	Y	Y	Y	N
	Italy	Y	N	Y/N	N	Y	Y/N	Y/N	N	Y	N	Y/N	N
	Japan	N	N	Y	N	N	N	Y	N	N	N	Y	N
	Korea	N	N	N	Y					N	N	N	Y
	Luxembourg	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N
	Mexico	N	Y	Y	N					Y/N	Y	Y	N
	Netherlands[1]	Y	Y	Y	N	a	a	a	a	Y	Y	Y	N
	New Zealand	Y	N	N	N								
	Norway	N	Y	Y	N	a	a	a	a	N	Y	Y	N
	Poland[1]	Y	N	Y	N	a	a	a	a	Y	N	Y	N
	Portugal	m	m	m	m	m	m	m	m	m	m	m	m
	Slovak Republic[1]	Y	N	Y	N					Y	N	Y	N
	Spain	N	Y	Y	N					Y/N	Y/N	Y/N	N
	Sweden	Y/N	Y/N	N	Y/N								
	Switzerland	Y	Y	Y		Y	Y	Y		Y		Y	
	Turkey[1]	N	N	Y	N	N	N	Y	N	N	N	Y	N
	United Kingdom[1]	N[4]	Y	N	N	a	a	a	a		Y	N	N
	United States[1]	20Y/30N	SS	SS	Y[5]	a	a	a	a	a	a	a	a
Partner country	**Israel**[1]	Y/N	Y	Y	N	a	a	a	a	Y/N	Y	Y	

Note: Y = Yes; N = No; SS = Some states

1. See Annex 3 Chapter A for additional notes on completion requirements *(www.oecd.org/edu/eag2009)*.
2. Completion requirements for ISCED 3A vary by state and territory. The information provided represents a generalisation of diverse requirements.
3. Covers general education only.
4. There is usually no final examination, though some ISCED 3A programmes can be completed this way.
5. Almost all states specify levels of Carnegie credits (*i.e.* acquired through completion of a two-semester course in specific subjects, which vary by state).

Source: OECD.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/681781308672

Annex

2

Reference Statistics

Table X2.1.

Overview of the economic context using basic variables (reference period: calendar year 2006, 2006 current prices)

		Total public expenditure as a percentage of GDP	GDP per capita (in equivalent USD converted using PPPs)	GDP deflator (1995 =100)	GDP deflator (2000 =100)
OECD countries	**Australia**	m	35 666	136.8	124.5
	Austria	49.3	35 259	113.2	110.4
	Belgium	48.3	33 608	120.1	113.3
	Canada[1]	43.4	34 888	125.2	115.4
	Czech Republic	43.8	21 966	158.8	114.5
	Denmark	51.6	34 871	126.2	114.4
	Finland	48.9	32 586	116.2	106.3
	France	52.7	31 055	118.7	113.0
	Germany	45.3	32 835	107.2	106.1
	Greece	42.4	26 701	156.5	121.9
	Hungary	51.8	18 030	264.3	137.1
	Iceland	41.7	35 096	157.4	132.6
	Ireland	33.7	41 803	152.4	122.1
	Italy	49.9	29 356	133.7	116.9
	Japan	36.5	32 040	89.9	92.6
	Korea	30.2	23 083	130.6	111.6
	Luxembourg	38.6	75 754	131.4	121.5
	Mexico	22.0	13 332	341.4	149.0
	Netherlands	45.6	37 130	131.4	117.0
	New Zealand	31.9	26 808	126.8	116.6
	Norway	40.6	52 118	167.4	127.7
	Poland	43.8	14 842	195.3	115.2
	Portugal	46.3	21 656	141.2	120.1
	Slovak Republic	19.5	18 020	175.1	128.2
	Spain	38.5	29 520	147.2	127.8
	Sweden	54.3	34 456	115.0	109.0
	Switzerland	43.1	38 568	107.0	104.7
	Turkey	m	12 074	4 448.3	340.7
	United Kingdom	46.1	34 137	131.3	116.7
	United States	37.0	43 839	126.7	116.7
Partner countries	**Brazil**	31.2	9 440	251.0	178.0
	Chile[2]	20.5	13 904	182.9	156.4
	Estonia	33.4	18 519	219.8	133.3
	Israel	45.0	24 680	149.4	108.6
	Russian Federation	29.6	13 248	1 203.9	254.7
	Slovenia	44.4	24 868	192.0	132.4

1. Year of reference 2005.
2. Year of reference 2007.

Source: OECD.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/681888503672

Table X2.2

Basic reference statistics (reference period: calendar year 2006, 2006 current prices)[1]

		Gross Domestic Product (in millions of local currency)[2]	Gross Domestic Product (adjusted to financial year)[3]	Total public expenditure (in millions of local currency)	Total population in thousand (mid-year estimates)	Purchasing Power Parity for GDP (PPP) (USD = 1)	Purchasing Power Parity for GDP (PPP) (Euro zone = 1)	Purchasing Power Parity for private consumption (PPP) (USD = 1)
OECD countries	**Australia**	1 045 674		333 972	20 822	1.408059	1.6461	1.4646
	Austria	257 295		126 926	8 282	0.881098	1.0300	0.8822
	Belgium	318 223		153 582	10 543	0.898096	1.0499	0.9228
	Canada[4]	1 372 626	1 311 337	568 681	32 649	1.205036	1.4087	1.2436
	Czech Republic	3 215 642		1 409 224	10 267	14.259145	16.6696	15.0383
	Denmark	1 628 630		841 076	5 437	8.590117	10.0422	8.9264
	Finland	167 041		81 631	5 266	0.973386	1.1379	1.0606
	France	1 807 462		952 516	63 195	0.920985	1.0767	0.9413
	Germany	2 321 500		1 052 290	82 366	0.85839	1.0035	0.8909
	Greece	213 207		90 506	11 149	0.716248	0.8373	0.7676
	Hungary	23 785 244		12 329 018	10 071	130.984735	153.1269	137.7105
	Iceland	1 167 684		486 617	304	109.325126	127.8059	109.4026
	Ireland	177 286		59 720	4 253	0.997109	1.1657	1.0724
	Italy	1 479 981		739 185	58 942	0.855332	0.9999	0.9017
	Japan[5]	508 925 100	503 532 075	183 596 600	127 755	124.331944	145.3495	138.5823
	Korea	848 044 635		256 137 600	48 297	760.668286	889.2545	872.7427
	Luxembourg	33 921		13 101	473	0.94748	1.1076	0.9671
	Mexico	10 306 839		2 270 559	104 748	7.380627	8.6283	7.7016
	Netherlands	539 929		246 356	16 341	0.88988	1.0403	0.9002
	New Zealand	169 135		54 003	4 142	1.523227	1.7807	1.5995
	Norway	2 159 573		875 710	4 661	8.890022	10.3928	9.7187
	Poland	1 060 031		464 337	38 132	1.873	2.1896	2.0926
	Portugal	155 446		71 947	10 584	0.678159	0.7928	0.7341
	Slovak Republic	1 659 398		323 655	5 391	17.081592	19.9691	18.487
	Spain	982 303		378 321	44 068	0.755099	0.8827	0.7938
	Sweden	2 900 790		1 575 244	9 081	9.270923	10.8381	9.4818
	Switzerland	487 041		209 950	7 459	1.692962	1.9791	1.8229
	Turkey	758 391		m	72 974	0.860733	1.0062	1.0376
	United Kingdom	1 321 860	1 269 844	584 779	60 587	0.639124	0.7472	0.6501
	United States	13 116 500	12 928 400	4 779 807	299 199	1	1.1690	1
	Euro zone					*0.855*		
Partner countries	**Brazil**	2 322 818		725 227	189 323	1.2997	1.5194	m
	Chile[6]	85 639 828		17 578 959	16 604	370.955	433.6626	m
	Estonia	205 038		68 412	1 345	8.233554	9.6254	9.118
	Israel	640 776		288 389	7 054	3.6808	4.3030	4.0293
	Russian Federation	26 879 762		7 959 567	142 487	14.24	m	m
	Slovenia	7 430 748		3 302 139	2 008	148.822431	173.9799	0.6643

1. Data on GDP, PPPs and total public expenditure in countries in the Euro zone are provided in Euros.
2. GDP calculated for the fiscal year in Australia and GDP and total public expenditure calculated for the fiscal year in New Zealand.
3. For countries where GDP is not reported for the same reference period as data on educational finance, GDP is estimated as: wt-1 (GDPt - 1) + wt (GDPt), where wt and wt-1 are the weights for the respective portions of the two reference periods for GDP which fall within the educational financial year. Adjustments were made in Chapter B for Australia, Canada, Japan, the United Kingdom and the United States.
4. Year of reference 2005.
5. Total public expenditure adjusted to financial year.
6. Year of reference 2007.

Source: OECD.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/681888503672

Table X2.3a.

Reference statistics used in the calculation of teachers' salaries, by level of education (1996, 2007)

		Teachers' salaries in national currency (1996)[1]								
		Primary education			Lower secondary education			Upper secondary education, general programmes		
		Starting salary / minimum training	Salary after 15 years of experience / minimum training	Salary at top of scale / minimum training	Starting salary / minimum training	Salary after 15 years of experience / minimum training	Salary at top of scale / minimum training	Starting salary / minimum training	Salary after 15 years of experience / minimum training	Salary at top of scale / minimum training
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD countries	Australia	25 693	46 781	46 781	25 693	46 781	46 781	25 693	46 781	46 781
	Austria	19 911	25 522	40 136	20 598	26 791	42 910	21 891	29 334	48 204
	Belgium (Fl.)[2]	20 479	27 542	32 721	20 950	29 346	35 781	25 998	37 534	45 119
	Belgium (Fr.)[2]	20 479	27 542	32 721	20 950	29 346	35 781	25 998	37 534	45 119
	Czech Republic	w	w	w	w	w	w	w	w	w
	Denmark	200 000	244 000	250 000	200 000	244 000	250 000	218 000	310 000	325 000
	England	12 113	20 423	20 423	12 113	20 423	20 423	12 113	20 423	20 423
	Finland	17 660	23 378	24 051	19 846	27 751	28 928	20 519	28 928	30 610
	France	w	w	w	w	w	w	w	w	w
	Germany	w	w	w	w	w	w	w	w	w
	Greece	10 772	12 854	15 148	11 141	13 223	15 518	11 141	13 223	15 518
	Hungary	341 289	462 618	597 402	341 289	462 618	597 402	435 279	574 067	717 756
	Iceland	m	m	m	m	m	m	m	m	m
	Ireland	18 235	28 189	33 362	19 141	29 872	33 679	19 141	29 872	33 679
	Italy	14 939	18 030	21 864	16 213	19 796	24 233	16 213	20 412	25 442
	Japan	3 462 000	5 917 000	8 475 000	3 462 000	5 917 000	8 475 000	3 462 000	5 917 000	8 733 000
	Korea	w	w	w	w	w	w	w	w	w
	Luxembourg	m	m	m	m	m	m	m	m	m
	Mexico	29 105	38 606	63 264	37 092	47 174	76 196	m	m	m
	Netherlands	21 772	26 537	32 627	22 925	28 847	35 840	23 120	40 273	47 756
	New Zealand	23 000	39 220	39 220	23 000	39 220	39 220	23 000	39 220	39 220
	Norway	165 228	201 446	204 211	165 228	201 446	204 211	178 752	207 309	222 078
	Poland	m	m	m	m	m	m	m	m	m
	Portugal	9 970	15 001	25 902	9 970	15 001	25 902	9 970	15 001	25 902
	Scotland	12 510	20 796	20 796	12 510	20 796	20 796	12 510	20 796	20 796
	Slovak Republic	m	m	m	m	m	m	m	m	m
	Spain	18 609	21 823	27 940	m	m	m	21 582	25 327	31 780
	Sweden	w	w	w	w	w	w	w	w	w
	Switzerland	65 504	87 585	100 847	m	m	m	m	m	m
	Turkey	w	w	w	a	a	a	w	w	w
	United States	25 079	31 693	m	24 861	31 690	m	24 891	31 954	m
Partner countries	Brazil	m	m	m	m	m	m	m	m	m
	Chile	m	m	m	m	m	m	m	m	m
	Estonia	25 380	27 120	29 040	25 380	27 120	29 040	25 380	27 120	29 040
	Israel	m	m	m	m	m	m	m	m	m
	Russian Federation	m	m	m	m	m	m	m	m	m
	Slovenia	m	m	m	m	m	m	m	m	m

1. Data on salaries for countries now in the Euro zone are shown in Euros.
2. Data on teachers' salaries for 1996 refer to Belgium.

Source: OECD.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/681888503672

Table X2.3a. *(continued)*

Reference statistics used in the calculation of teachers' salaries, by level of education (1996, 2007)[1]

		Teachers' salaries in national currency (2007)[2]									
		Primary education			Lower secondary education			Upper secondary education, general programmes			
		Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/ minimum training	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/ minimum training	Starting salary/ minimum training	Salary after 15 years of experience/ minimum training	Salary at top of scale/ minimum training	GDP deflator 2007 (1996 = 100)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
OECD countries	**Australia**	46 646	63 977	63 977	46 858	64 984	64 984	46 858	64 984	64 984	141
	Austria	24 791	32 830	49 150	25 913	35 467	51 080	26 279	36 493	53 830	115
	Belgium (Fl.)	26 563	37 236	45 416	26 563	37 236	45 416	32 981	47 644	57 286	122
	Belgium (Fr.)	25 390	35 697	43 653	25 390	35 697	43 653	31 558	45 820	55 198	122
	Czech Republic	305 998	414 913	506 424	305 998	414 913	506 424	324 757	443 286	544 267	149
	Denmark	306 762	346 569	346 569	306 762	346 569	346 569	300 918	423 426	423 426	126
	England	19 461	28 707	28 707	19 461	28 707	28 707	19 461	28 707	28 707	130
	Finland	27 496	35 664	44 853	30 500	38 165	48 296	31 050	41 964	54 384	120
	France	21 631	29 097	42 932	23 807	31 274	45 209	24 059	31 525	45 486	120
	Germany	37 313	45 877	49 562	41 225	49 861	55 903	44 300	53 640	61 530	109
	Greece	18 169	22 159	26 653	18 169	22 159	26 653	18 169	22 159	26 653	150
	Hungary	1 532 436	1 983 240	2 638 332	1 532 436	1 983 240	2 638 332	1 756 380	2 474 508	3 328 212	231
	Iceland	2 518 454	2 830 814	3 288 386	2 518 454	2 830 814	3 288 386	2 849 000	3 619 000	3 796 000	162
	Ireland	31 497	52 177	59 125	31 497	52 177	59 125	31 497	52 177	59 125	151
	Italy	21 328	25 799	31 434	22 980	28 095	34 500	22 980	28 880	36 063	130
	Japan	3 335 000	5 958 000	7 533 000	3 335 000	5 958 000	7 533 000	3 335 000	5 958 000	7 737 000	90
	Korea	23 955 100	41 387 505	66 271 272	23 859 100	41 291 505	66 175 272	23 859 100	41 291 505	66 175 272	126
	Luxembourg	47 407	65 284	96 622	68 289	85 371	118 653	68 289	85 371	118 653	130
	Mexico	104 415	137 323	227 967	133 872	174 854	289 632	m	m	m	274
	Netherlands	30 331	39 303	43 844	31 432	43 204	48 084	31 734	55 905	63 488	132
	New Zealand	30 150	58 327	58 327	30 150	58 327	58 327	30 150	58 327	58 327	130
	Norway	294 237	332 218	367 592	294 237	332 218	367 592	314 261	354 059	387 383	164
	Poland	m	m	m	m	m	m	m	m	m	171
	Portugal	14 380	23 541	36 921	14 380	23 541	36 921	14 380	23 541	36 921	142
	Scotland	19 586	31 241	31 241	19 586	31 241	31 241	19 586	31 241	31 241	130
	Slovak Republic	m	m	m	m	m	m	m	m	m	170
	Spain	25 688	29 934	37 099	28 900	33 580	40 986	29 525	34 339	41 834	147
	Sweden	256 800	298 800	343 200	262 000	306 300	347 400	276 000	326 900	371 800	117
	Switzerland	70 346	91 017	112 067	80 879	104 157	126 592	94 079	122 259	145 276	109
	Turkey	11 835	13 206	14 740	a	a	a	11 835	13 206	14 740	2 703
	United States	35 907	43 633	m	34 519	44 015	m	34 672	43 966	m	128
Partner countries	**Brazil**	m	m	m	m	m	m	m	m	m	221
	Chile	3 818 076	4 636 394	6 204 576	3 818 076	4 636 394	6 204 576	3 818 076	4 852 425	6 499 056	m
	Estonia	88 800	79 968	110 500	88 800	79 968	110 500	88 800	79 968	110 500	193
	Israel	50 967	59 525	83 176	50 967	59 525	83 176	50 967	59 525	83 176	135
	Russian Federation	m	m	m	m	m	m	m	m	m	m
	Slovenia	17 130	20 005	21 187	17 130	20 005	21 187	17 130	20 005	21 187	180

1. For the computation of teachers' salaries in equivalent USD shown in Indicator D3, teachers' salaries are converted from national currencies to USD using January 2006 PPPs for GDP and adjusted for inflation where necessary. Teachers' salaries in equivalent USD based on January 2006 PPPs for final consumption are shown in Table X2.3c of Annex 2.
2. Data on salaries for countries now in the Euro zone are shown in Euros.

Source: OECD.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

StatLink http://dx.doi.org/10.1787/681888503672

Table X2.3b.

Reference statistics used in the calculation of teachers' salaries (1996, 2007)

		Purchasing Power Parity for GDP (PPP) (2006)[1]	Purchasing Power Parity for GDP (PPP) (2007)[1]	Purchasing Power Parity for GDP (PPP) (January 2007)[1]	Gross Domestic Product (in millions of local currency, calendar year 2007)[1]	Total population in thousands (calendar year 2007)	GDP per capita (in equivalent USD, calendar year 2007)[2]	Reference year for 2007 salary data	Adjustments for inflation (2007)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD countries	Australia	1.41	1.42	1.42	1 132 172	21 153	37 692	2007	0.98
	Austria	0.88	0.88	0.88	270 837	8 315	37 012	2006/2007	1.00
	Belgium (Fl.)[3]	0.90	0.89	0.90	334 917	10 622	35 428	Jan 2007	1.00
	Belgium (Fr.)[3]	0.90	0.89	0.90	334 917	10 622	35 428	2006/2007	1.00
	Czech Republic	14.26	14.23	14.25	3 530 249	10 323	24 033	2006/2007	1.00
	Denmark	8.59	8.60	8.60	1 687 892	5 460	35 946	2006/2007	1.00
	England[4]	0.64	0.65	0.65	1 401 042	60 783	35 461	2006/2007	1.00
	Finland	0.97	0.98	0.98	179 659	5 289	34 664	01 Oct. 2006	1.00
	France	0.92	0.91	0.92	1 892 241	63 573	32 709	2006/2007	1.00
	Germany	0.86	0.86	0.86	2 422 900	82 263	34 248	2006/2007	1.00
	Greece	0.72	0.72	0.72	228 180	11 193	28 314	2005	1.04
	Hungary	130.98	134.78	132.88	25 419 164	10 056	18 755	2007	0.97
	Iceland	109.33	115.10	112.22	1 279 379	311	35 695	2006/2007	1.00
	Ireland	1.00	0.97	0.99	190 603	4 357	45 099	2006/2007	1.00
	Italy	0.86	0.85	0.86	1 535 540	59 319	30 454	2006/2007	1.00
	Japan	124.33	120.14	122.24	515 804 800	127 771	33 602	2006/2007	1.00
	Korea	760.67	749.88	755.28	901 188 604	48 456	24 801	2007	1.00
	Luxembourg	0.95	0.95	0.95	36 278	480	79 557	2006/2007	1.00
	Mexico	7.38	7.53	7.46	11 139 674	105 677	13 999	2006/2007	1.00
	Netherlands	0.89	0.88	0.89	567 066	16 377	39 347	2006/2007	1.00
	New Zealand	1.52	1.55	1.54	177 551	4 185	27 371	2007	0.98
	Norway	8.89	9.05	8.97	2 277 111	4 706	53 467	1Dec. 2007	0.98
	Poland	1.87	1.92	1.90	1 167 795	38 116	15 957	m	1.00
	Portugal	0.68	0.67	0.68	163 119	10 608	22 950	2006/2007	1.00
	Scotland[4]	0.64	0.65	0.65	1 401 042	60 783	35 461	2006/2007	1.00
	Slovak Republic	17.08	17.10	17.09	1 852 781	5 397	20 078	m	1.00
	Spain	0.76	0.74	0.75	1 050 595	44 874	31 638	2006/2007	1.00
	Sweden	9.27	9.14	9.21	3 061 449	9 148	36 615	2007	0.99
	Switzerland	1.69	1.66	1.68	512 142	7 509	41 088	2006/2007	1.00
	Turkey	0.86	0.89	0.88	856 387	73 904	13 020	2006	1.04
	United States	1.00	1.00	1.00	13 741 600	302 087	45 489	2006/2007	1.00
Partner countries	Brazil	1.36	1.38	1.37	1 937 598	191 000	7 351	m	m
	Chile	363.46	371.42	367.44	66 598 992	16 600	10 802	2007	0.96
	Estonia	8.23	8.75	8.49	238 929	1 342	20 341	2006/2007	1.00
	Israel	3.67	3.56	3.62	673 552	7 180	26 351	2006/2007	1.00
	Russian Federation	m	m	m	m	m	m	m	m
	Slovenia	0.62	0.64	0.63	34 471	2 019	26 681	2006/2007	1.00

Note: Adjustments for inflation are used if the reference year deviates from 2006/2007 and the inflation between the actual reference year and 2006/2007 would deviate more than 1 per cent.

1. Data on PPPs and GDP for countries now in the Euro zone are shown in Euros.
2. GDP per capita in national currencies (2007) has been calculated from total population (2007) and total GDP (2007), and has been converted to USD using PPPs for GDP (2007). These data are available in this table.
3. Data on Gross Domestic Product and total population refer to Belgium.
4. Data on Gross Domestic Product and total population refer to the United Kingdom.

Source: OECD.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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Table X2.3c.

Teachers' salaries (2007)

Annual statutory teachers' salaries in public institutions at starting salary, after 15 years of experience and at the top of the scale by level of education, in equivalent Euros converted using PPPs

		Primary education				Lower secondary education				Upper secondary education			
		Starting salary/ minimum training	Salary after 15 years of experience/minimum training	Salary at top of scale/ minimum training	Ratio of salary after 15 years of experience to GDP per capita	Starting salary/ minimum training	Salary after 15 years of experience/minimum training	Salary at top of scale/ minimum training	Ratio of salary after 15 years of experience to GDP per capita	Starting salary/ minimum training	Salary after 15 years of experience/minimum training	Salary at top of scale/ minimum training	Ratio of salary after 15 years of experience to GDP per capita
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries	**Australia**	28 323	38 847	38 847	1.17	28 452	39 459	39 459	1.19	28 452	39 459	39 459	1.19
	Austria	24 735	32 755	49 038	1.01	25 854	35 387	50 964	1.09	26 219	36 410	53 708	1.12
	Belgium (Fl.)	26 059	36 529	44 553	1.17	26 059	36 529	44 553	1.17	32 354	46 739	56 198	1.50
	Belgium (Fr.)	24 908	35 019	42 823	1.13	24 908	35 019	42 823	1.13	30 958	44 949	54 150	1.45
	Czech Republic	18 860	25 573	31 214	1.21	18 860	25 573	31 214	1.21	20 017	27 322	33 546	1.29
	Denmark	31 336	35 403	35 403	1.12	31 336	35 403	35 403	1.12	30 740	43 254	43 254	1.37
	England	26 491	39 077	39 077	1.26	26 491	39 077	39 077	1.26	26 491	39 077	39 077	1.26
	Finland	24 761	32 116	40 391	1.06	27 466	34 368	43 491	1.13	27 961	37 789	48 973	1.24
	France	20 756	27 920	41 196	0.97	22 844	30 009	43 381	1.04	23 086	30 250	43 647	1.05
	Germany	38 094	46 837	50 599	1.56	42 088	50 904	57 073	1.69	45 227	54 762	62 817	1.82
	Greece	23 114	28 190	33 907	1.13	23 114	28 190	33 907	1.13	23 114	28 190	33 907	1.13
	Hungary	9 847	12 744	16 954	0.77	9 847	12 744	16 954	0.77	11 286	15 901	21 387	0.97
	Iceland	19 705	22 149	25 729	0.71	19 705	22 149	25 729	0.71	22 291	28 316	29 701	0.90
	Ireland	28 075	46 509	52 702	1.17	28 075	46 509	52 702	1.17	28 075	46 509	52 702	1.17
	Italy	21 901	26 493	32 280	0.99	23 598	28 850	35 428	1.08	23 598	29 657	37 033	1.11
	Japan	23 955	42 796	54 109	1.45	23 955	42 796	54 109	1.45	23 955	42 796	55 574	1.45
	Korea	27 848	48 113	77 040	2.21	27 736	48 001	76 928	2.20	27 736	48 001	76 928	2.20
	Luxembourg	43 814	60 336	89 299	0.86	63 113	78 901	109 660	1.13	63 113	78 901	109 660	1.13
	Mexico	12 297	16 173	26 848	1.32	15 767	20 593	34 111	1.68	m	m	m	m
	Netherlands	30 091	38 992	43 497	1.13	31 183	42 862	47 704	1.24	31 483	55 463	62 986	1.61
	New Zealand	16 889	32 673	32 673	1.36	16 889	32 673	32 673	1.36	16 889	32 673	32 673	1.36
	Norway	28 226	31 870	35 263	0.68	28 226	31 870	35 263	0.68	30 147	33 965	37 162	0.72
	Poland	m	m	m	m	m	m	m	m	m	m	m	m
	Portugal	18 705	30 621	48 024	1.52	18 705	30 621	48 024	1.52	18 705	30 621	48 024	1.52
	Scotland	26 661	42 527	42 527	1.37	26 661	42 527	42 527	1.37	26 661	42 527	42 527	1.37
	Slovak Republic	m	m	m	m	m	m	m	m	m	m	m	m
	Spain	30 072	35 043	43 431	1.26	33 832	39 312	47 981	1.42	34 564	40 200	48 974	1.45
	Sweden	24 144	28 092	32 267	0.87	24 633	28 797	32 662	0.90	25 949	30 734	34 956	0.96
	Switzerland	36 874	47 709	58 743	1.32	42 395	54 597	66 357	1.51	49 314	64 086	76 151	1.78
	Turkey	12 348	13 778	15 379	1.21	a	a	a	a	12 348	13 778	15 379	1.21
	United States	31 526	38 310	m	0.96	30 308	38 645	m	0.97	30 442	38 602	m	0.97
	OECD average	***25 187***	***34 248***	***41 922***	***1.17***	***27 218***	***36 870***	***45 191***	***1.23***	***28 256***	***39 319***	***47 798***	***1.30***
	EU 19 average	***25 917***	***34 778***	***42 589***	***1.14***	***27 825***	***36 925***	***45 028***	***1.19***	***28 926***	***39 961***	***48 817***	***1.29***
Partner economies	**Brazil**	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	9 589	11 393	15 365	1.11	9 589	11 393	15 365	1.11	9 589	11 922	16 086	1.16
	Estonia	9 183	8 270	11 427	0.46	9 183	8 270	11 427	0.46	9 183	8 270	11 427	0.46
	Israel	12 379	14 457	20 202	0.62	12 379	14 457	20 202	0.62	12 379	14 457	20 202	0.62
	Russian Federation	m	m	m	m	m	m	m	m	m	m	m	m
	Slovenia	23 873	27 880	29 527	1.19	23 873	27 880	29 527	1.19	23 873	27 880	29 527	1.19

Source: OECD. See Annex 3 for notes *(www.oecd.org/edu/eag2009)*.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

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General notes

Definitions

Gross domestic product (GDP) refers to the producers' value of the gross outputs of resident producers, including distributive trades and transport, less the value of purchasers' intermediate consumption plus import duties. GDP is expressed in local money (in millions). For countries which provide this information for a reference year that is different from the calendar year (such as Australia and New Zealand), adjustments are made by linearly weighting their GDP between two adjacent national reference years to match the calendar year.

The **GDP deflator** is obtained by dividing the GDP expressed at current prices by the GDP expressed at constant prices. This provides an indication of the relative price level in a country. Data are based on the year 2000.

GDP per capita is the gross domestic product (in equivalent US dollars converted using PPPs) divided by the population.

Purchasing power parity exchange rates (PPP) are the currency exchange rates that equalise the purchasing power of different currencies. This means that a given sum of money when converted into different currencies at the PPP rates will buy the same basket of goods and services in all countries. In other words, PPPs are the rates of currency conversion which eliminate the differences in price levels among countries. Thus, when expenditure on GDP for different countries is converted into a common currency by means of PPPs, it is, in effect, expressed at the same set of international prices so that comparisons between countries reflect only differences in the volume of goods and services purchased.

Total public expenditure as used for the calculation of the education indicators, corresponds to the non-repayable current and capital expenditure of all levels of government. Current expenditure includes final consumption expenditure (*e.g.,* compensation of employees, consumption intermediate goods and services, consumption of fixed capital, and military expenditure), property income paid, subsidies, and other current transfers paid (*e.g.,* social security, social assistance, pensions and other welfare benefits). Capital expenditure is spending to acquire and/or improve fixed capital assets, land, intangible assets, government stocks, and non-military, non-financial assets, and spending to finance net capital transfers.

Sources

The 2009 edition of the *National Accounts of OECD Countries: Main Aggregates, Volume I.*

The theoretical framework underpinning national accounts has been provided for many years by the United Nations' publication *A System of National Accounts*, which was released in 1968. An updated version was released in 1993 (commonly referred to as SNA93).

OECD Analytical Data Base, January 2009.

Annex

3

Sources, Methods and Technical Notes

Annex 3 on sources and methods is available in electronic form only. It can be found at: *www.oecd.org/edu/eag2009*

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